MOTOR AGE

Vol. XXIX
No. 7

CHICAGO, FEBRUARY 17, 1916

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MOTOR AGE

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—NEXT WEEK—

The series of articles on southern cities, discontinued during the months of the motor shows, will be resumed with next week's issue of Motor Age, "New Orleans, the City that Laughs," being the subject of the feature article for February 24. The theme is most apropos at this time as New Orleans is to celebrate her annual carnival, the Mardi Gras, in March.

MOTOR AGE

is to the motorist what the medical journal is to the doctor; what court reports are to the lawyer; what the efficiency paper is to the business man.

Motor Age is the acknowledged authority in its field.

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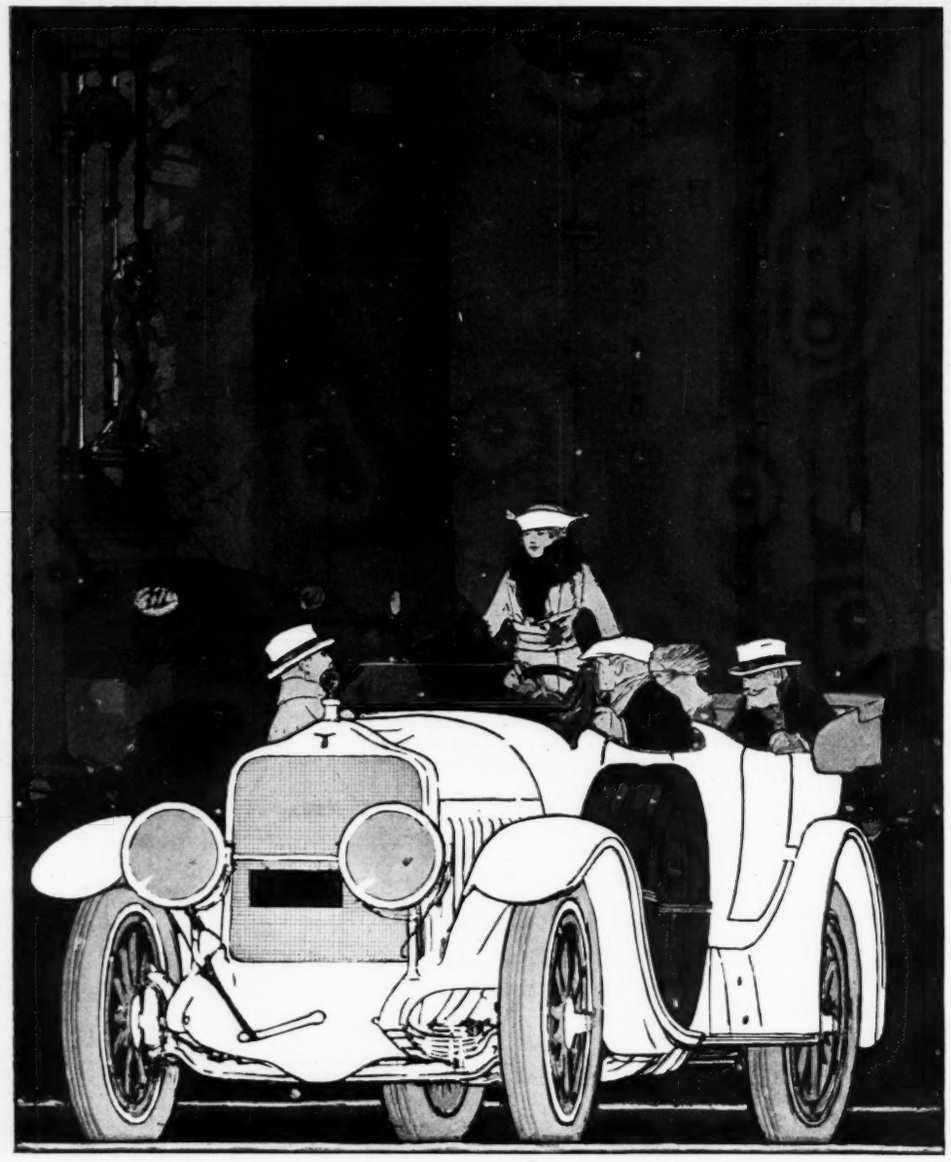

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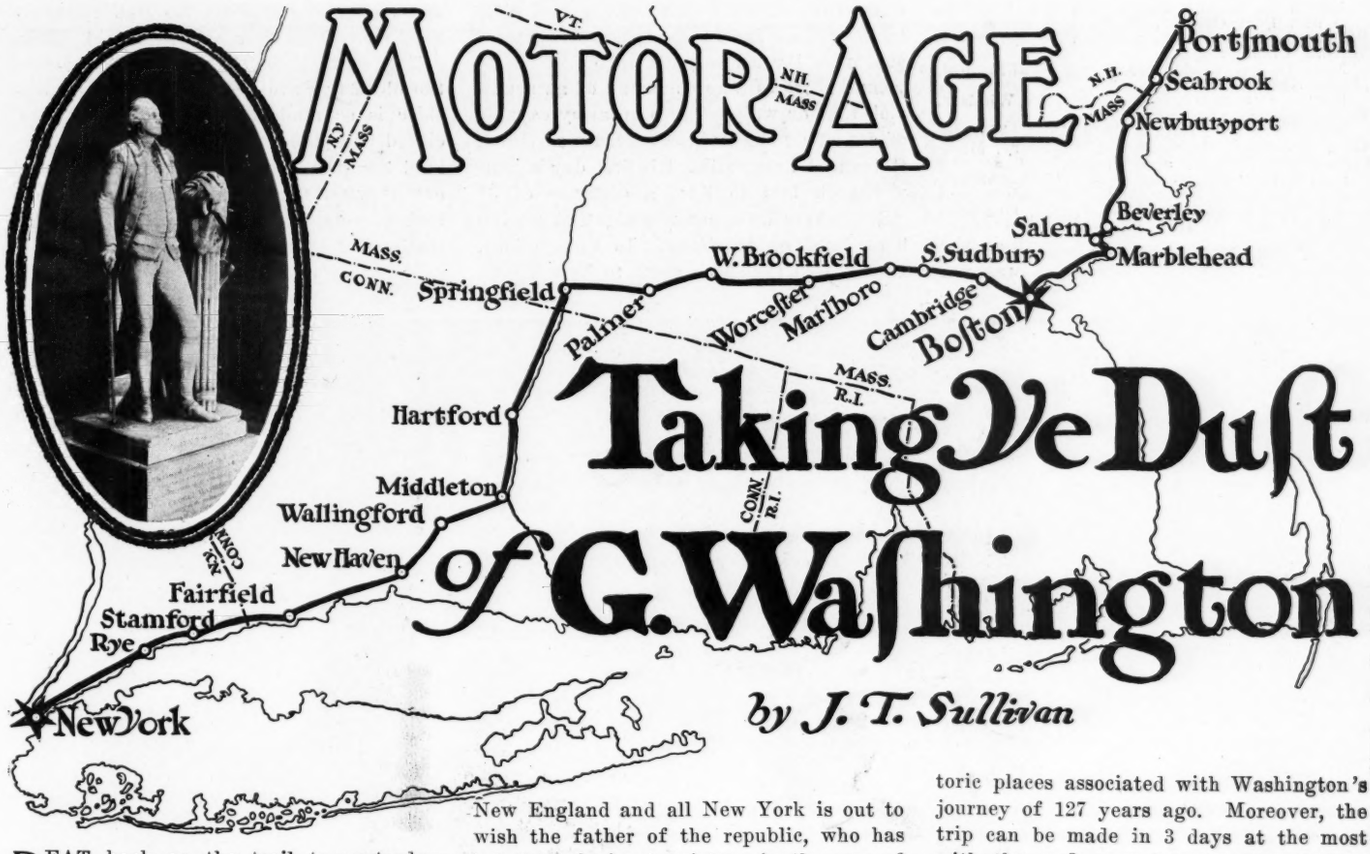


Taking Ye Dust of G. Washington

by J. T. Sullivan

BEAT back on the trail to yesterday 127 years and when you come to marker 1789, stop. It is a glorious autumn day, the fifteenth of October, and New York, then the national capital of 60,000 inhabitants and not the national metropolis of millions as now, is en fete even at an hour so early that the rising sun has not started as yet to ben day the waters of the East river with its rays.

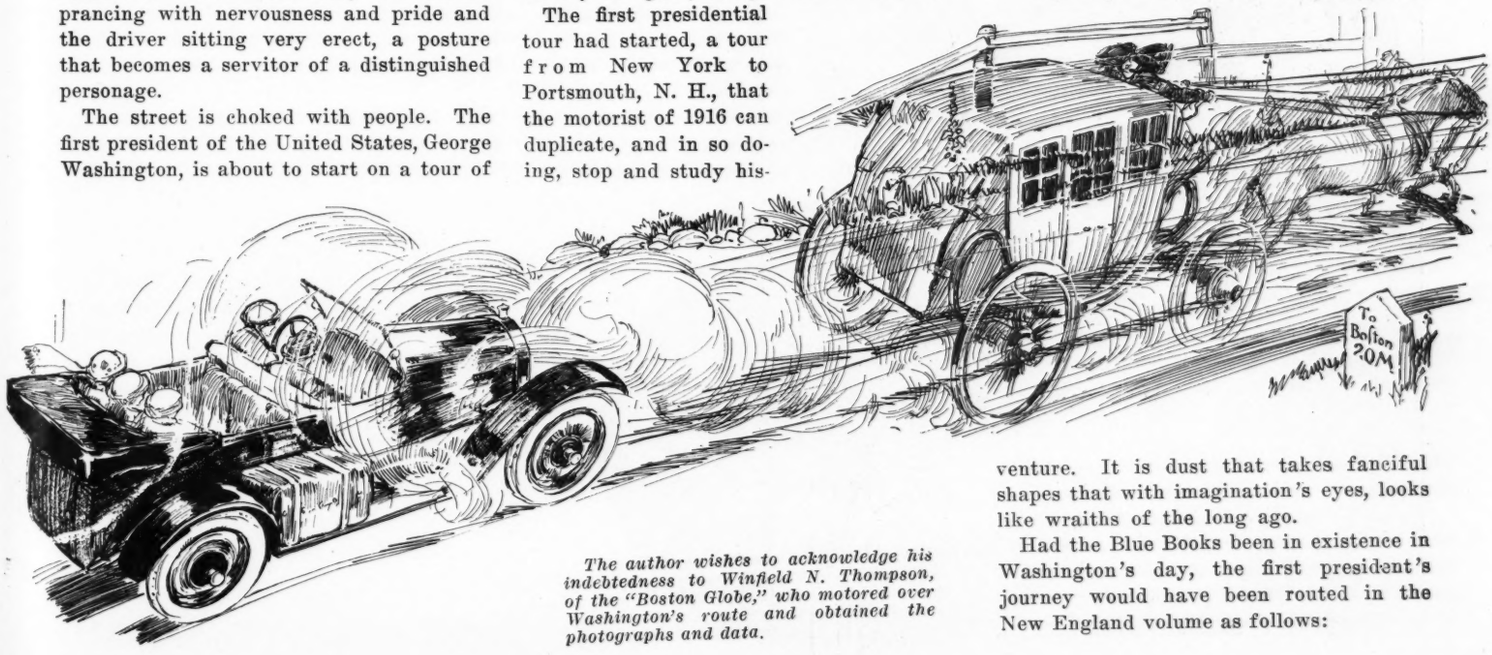
In front of a colonial mansion, registered in the directory as No. 3 Cherry street, and located at what is now the Manhattan end of the Brooklyn bridge, stands a coach and four, the horses prancing with nervousness and pride and the driver sitting very erect, a posture that becomes a servitor of a distinguished personage.

The street is choked with people. The first president of the United States, George Washington, is about to start on a tour of New England and all New York is out to wish the father of the republic, who has led the colonies to victory in the war of independence, Godspeed on his journey.

Accompanied by his secretaries, Colonel Jackson and Tobias Lear, Washington steps onto the porch of the presidential mansion, bows to the cheering crowd before descending the steps, handshakes his way down the walk to the curbstone and enters the coach. The driver's back stiffens and he tightens his hold on the reins. The horses are given the word and break into a canter. The wheels of the state carriage kick up a great cloud of dust. From the battery comes the boom of twenty-one guns, the president's salute.

The first presidential tour had started, a tour from New York to Portsmouth, N. H., that the motorist of 1916 can duplicate, and in so doing, stop and study historic places associated with Washington's journey of 127 years ago. Moreover, the trip can be made in 3 days at the most with the modern motor car, compared to the 11 days spent by the father of his country in a rumbling stage coach. The distance is approximately 310 miles and the ride is over excellent state roads of macadam and concrete.

There are other New England tours—the trips through the Berkshire Hills and the White and Green mountains and an exploration along the shores of Lake Champlain—that are probably more popular today than that of the first president, but it is doubtful whether they have the historic attractions that make the taking of Washington's dust a delightful adventure. It is dust that takes fanciful shapes that with imagination's eyes, looks like wraiths of the long ago.



The author wishes to acknowledge his indebtedness to Winfield N. Thompson, of the "Boston Globe," who motored over Washington's route and obtained the photographs and data.

Had the Blue Books been in existence in Washington's day, the first president's journey would have been routed in the New England volume as follows:

New York to New Haven, via New Rochelle, Rye and Port Chester, N. Y., and Greenwich, Stamford, Norwalk, Fairfield, Bridgeport and Milford, Conn.

New Haven to Hartford, via Wallingford, Meriden and Berlin.

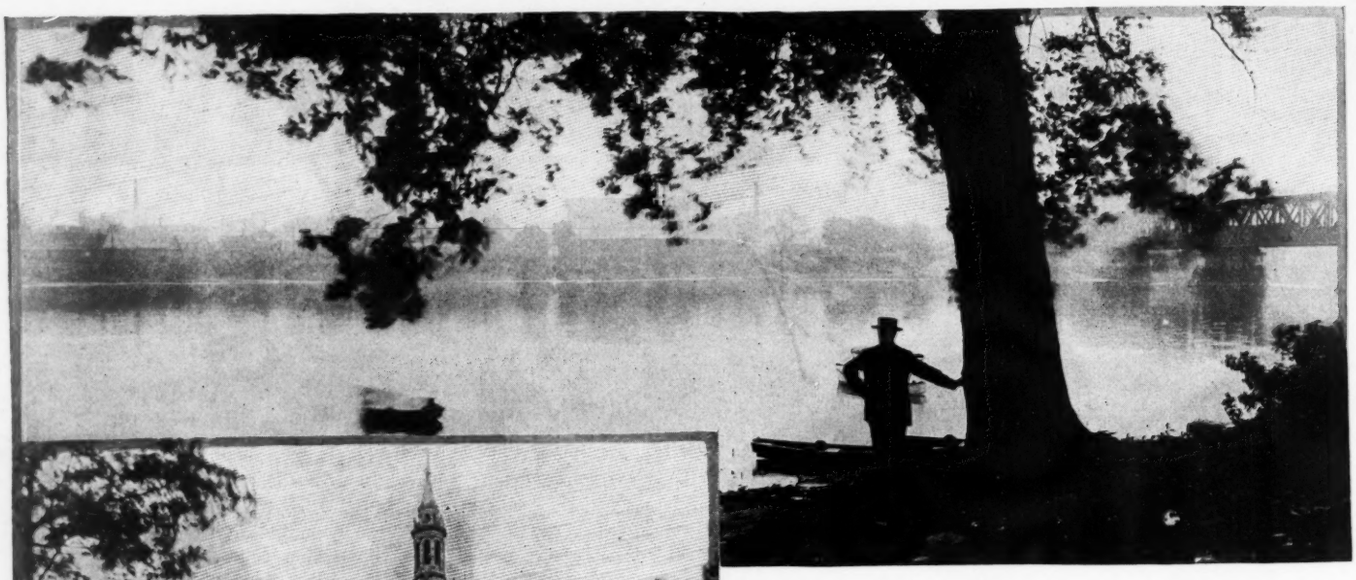
Hartford to Springfield, Mass., via Windsor, Windsor Locks and Suffield.

Springfield to Boston, via Palmer, Warren, West Brookfield, Worcester, Shrewsbury, Marlboro, South Sudbury and Weston.

Boston to Portsmouth, N. H., via Cambridge, Somerville, Lynn, Salem, Beverly, Newburyport and Salisbury, Mass., and Smithtown, Hampton and Rye Beach, N. H.

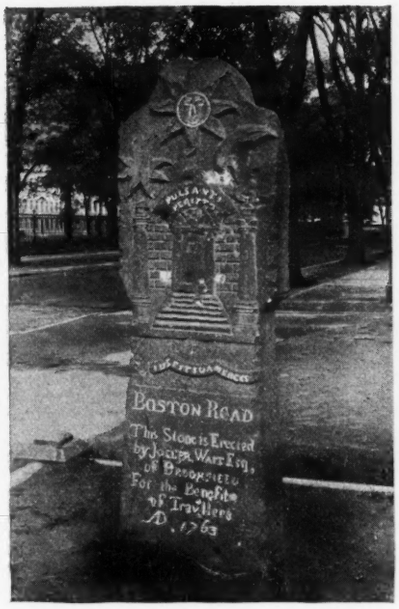
When Washington left New York on the morning of October 15, 1789, he was not unfamiliar with the route of his New England tour as far as Boston, having traveled over the same roads on horseback 14 years before to take command of an armed mob that he whipped into an army capable of defeating the trained redcoats of Howe, Gates and Cornwallis. His first day's journey took him to Rye, a distance of 31 miles, where he spent the night at an inn kept by Mrs. Haviland. In Connecticut, he followed the shore route to New Haven and then rode north up the rich valley of the Connecticut river to Springfield, Mass.

The route taken by Washington across the old Bay state and up into New Hampshire is so studded with landmarks associated with the first president's New England tour that we will silence the click of our typewriter's keys and surrender the task of completing this story to the illustrations of these historic places and their explanatory captions.



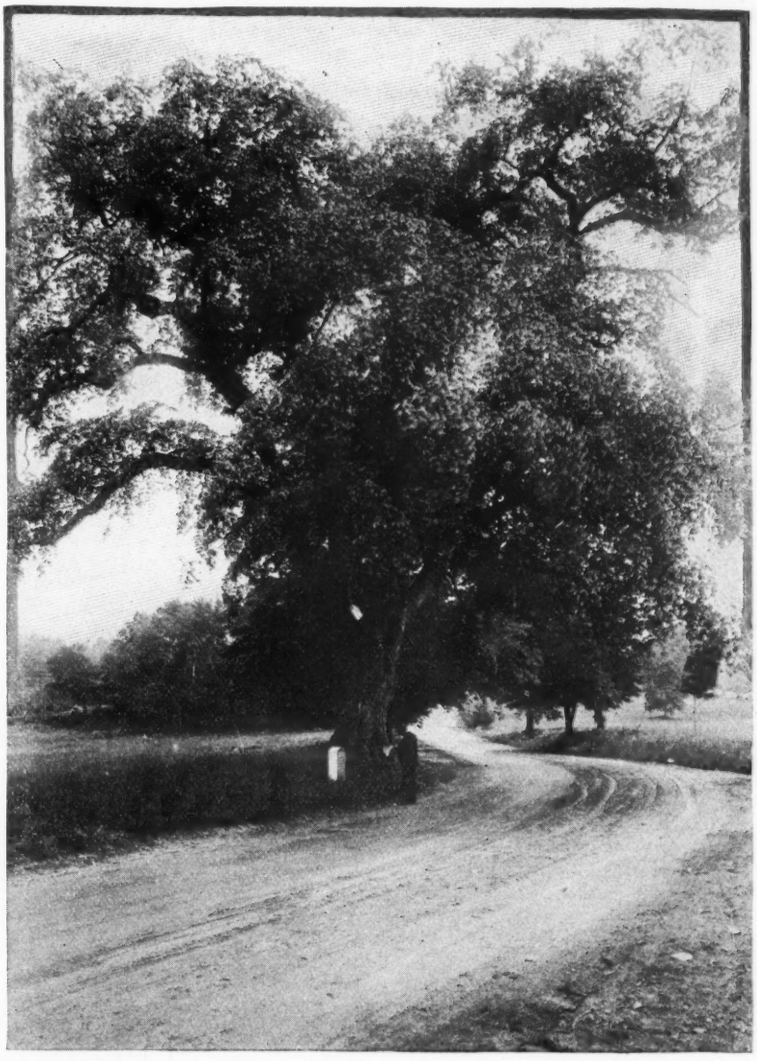
Washington spent 6 days on the trip through the Nutmeg state and on October 21, coming up the west side of the Connecticut river from Hartford, a journey of about 5 hours by coach, crossed the river at West Springfield on an old ferry, located a few rods north of the present railroad bridge. Part of the old chain that held the ferry boat is attached to an ancient maple tree on the south bank.

Upon entering the city of Springfield, Washington and his party went to the Zenas Parsons' tavern, where travelers of prominence, riding between Boston and New York or Albany, always spent the night. The famous old inn was torn down almost a century ago but its site in Court Square is marked by a boulder and tablet.

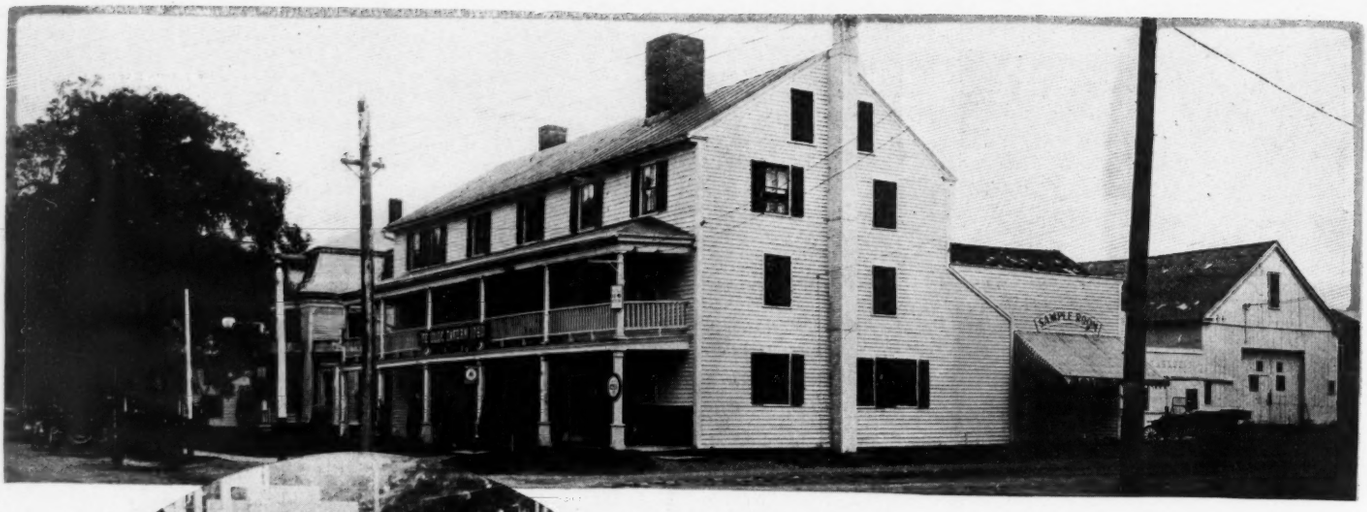


At the corner of State and Federal streets, Springfield, Washington passed this stone, erected by Joseph Waite, a Brookfield merchant, for the guidance of travelers who might lose their way as he once did. The Masonic emblem cut in the ancient road marker undoubtedly attracted the attention of the first president.

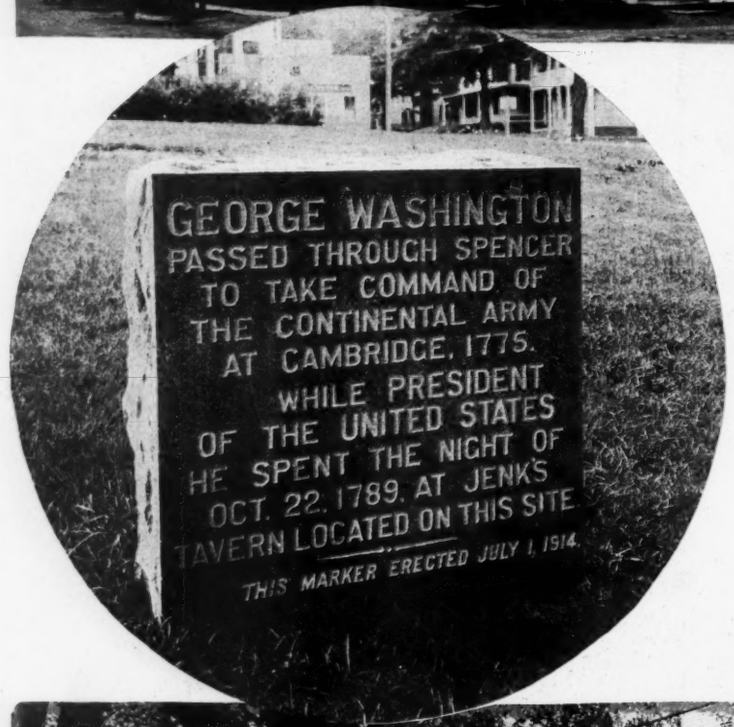
On the morning of October 22, Big Ben's predecessor awakened Washington and the members of his entourage long before the ham and eggs were heard sizzling in the frying pan, so the party drove to Palmer for breakfast, following the old Bay path, now an abandoned highway.



About a mile west of Palmer, stands a large elm tree near which is a tablet with the following inscription: "Under this elm, Washington passed June 30, 1775, and again on October 22, 1789. On the first date, tradition says he addressed the citizens of Palmer."



Moving east from Palmer to West Brookfield, the presidential party stopped for rest and refreshment at David Hitchcock's tavern, still standing.



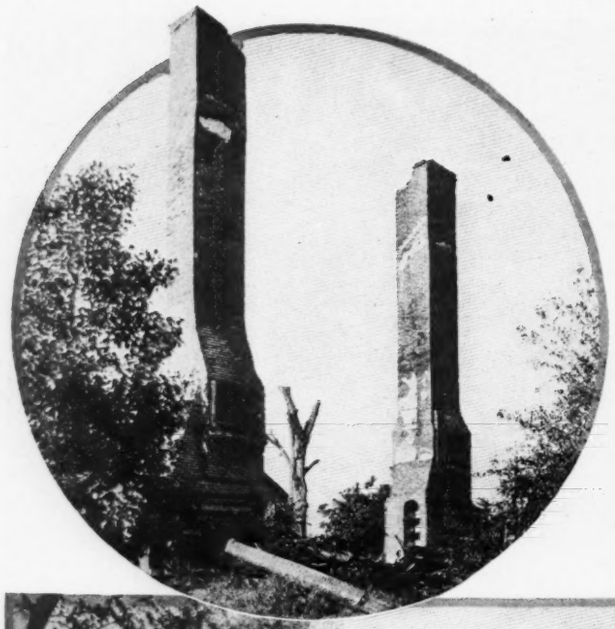
Washington continued his journey eastward that day as far as Spencer, where he spent the night at a tavern kept by Isaac Jenks. According to the diary of the country's father, it was a "pretty good tavern." The inn burned down about 1870 but in its place is a marker, which reads: "George Washington passed through Spencer to take command of the Continental army at Cambridge, 1775. While president of the United States, he spent the night of October 22, 1789 at Jenk's tavern, located on this site."

Leaving Spencer the next morning "with the sun," quoting from his diary, Washington traveled east through Leicester, made famous by a constable who held up the Glidden tourists several years ago, and over the hill into Worcester, where he and his party had breakfast at the old United States Arms. Motorists can find it on Main street, where it now bears the name of the Exchange Hotel.

On his journey from Worcester to Marlboro, over the old Shrewsbury road, Washington had to cross Lake Quinsigamond, then known as Long pond, at the narrows where the coach rumbled over an old bridge of stone and wood "with a frightful clatter."

After crossing Lake Quinsigamond, the road followed a ridge of a hill from where an excellent view of Mount Wachusett was enjoyed by the presidential party. The ride to Marlboro proved a most pleasant one and Washington knew that a good lunch was waiting for him at Williams' tavern, where he had stopped 14 years before. Colonel Abraham Williams was the proprietor of the house, which stands about a mile west of the railroad station. It is now known as "Ye Olde Gates Inn."

The trip from Marlboro took Washington through the scenic intervales of Sudbury and Wayland to Weston. The present road follows the same course as that traveled by the distinguished tourist of 1789 and the traveler of today, like the first president, finds the Wayside Inn at South Sudbury, immortalized by Henry W. Longfellow's "Tales of a Wayside Inn," a most attractive place to stop.

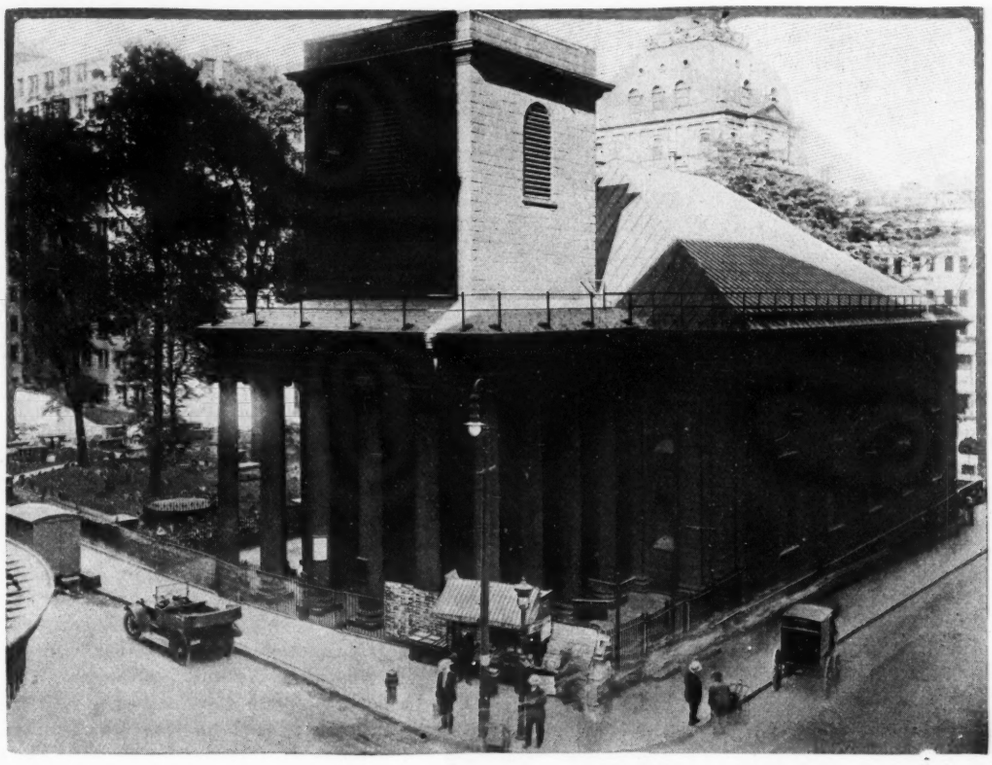


Washington stopped only a short while at South Sudbury, as he wished to make Weston before sundown in order to spend the night at John Flagg's tavern, noted throughout the east as "a very good place to stay." The famous tavern, like its genial host, is no more. All that remains of it are two tall chimneys, relics of a fire that razed the historic structure many years ago.

Following his usual habit of early rising, Washington, wearing his military uniform for the first time on the tour, was on his way when "the morning of October 24 was brisk." He passed through Waltham on his journey to Cambridge, where he went immediately to the Vassal house, his headquarters in 1775. The plans for his reception apparently miscarried for he had to wait for some time for the militia to be summoned and the presidential salute fired.

In fact, it was after 11 o'clock when the soldiers arrived and lined up for inspection under the historic elm where in 1775, Washington took command of the Continental army. The elm today is a proud old tree, surrounded by an iron fence, ornamented with a bronze tablet and standing in the classic shadows of Harvard university.

As Boston was anxiously awaiting the arrival of the president, shortly after noon he was escorted from Cambridge to the metropolis of Massachusetts where a reception was held in the old State House, from the balcony of which he reviewed a parade and looked down upon the scene of the Boston massacre, only 50 feet distant.

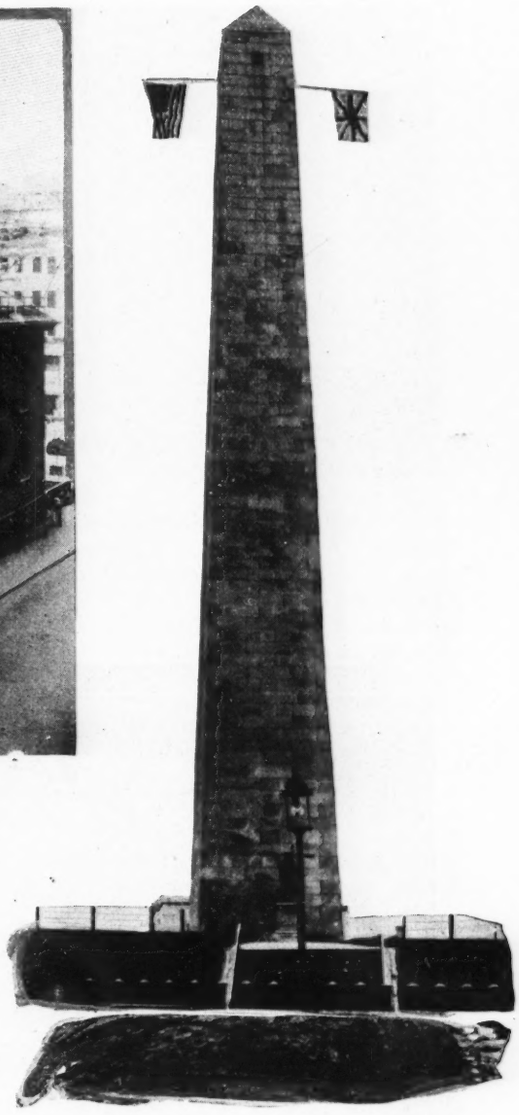


Washington spent 4 days in Boston before resuming his tour. One of the features provided for his entertainment was an oratorio on October 27, sung in King's Chapel, still standing at the corner of Tremont and School streets. This chapel is famous in American history, having been the scene of the weddings and funerals of many of our country's greatest statesmen and patriots.

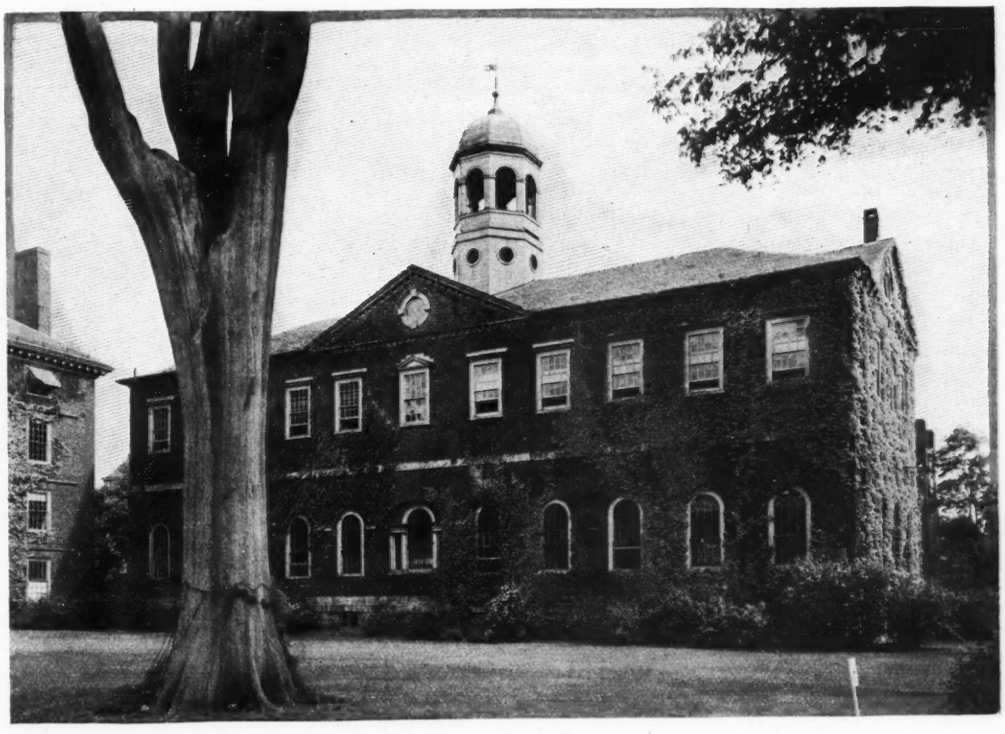
On October 29, Washington returned to Cambridge, passing through the North End, close by the home of Paul Revere and the old North Church, from the belfry of which were hung the lanterns that sent the patriot on his dramatic night ride to Lexington and Concord

"..... to spread the alarm
To every Middlesex village and farm."

At Charleston, the president walked over the historic battleground of Bunker Hill, upon which now stands the great memorial shaft, 221 feet high.



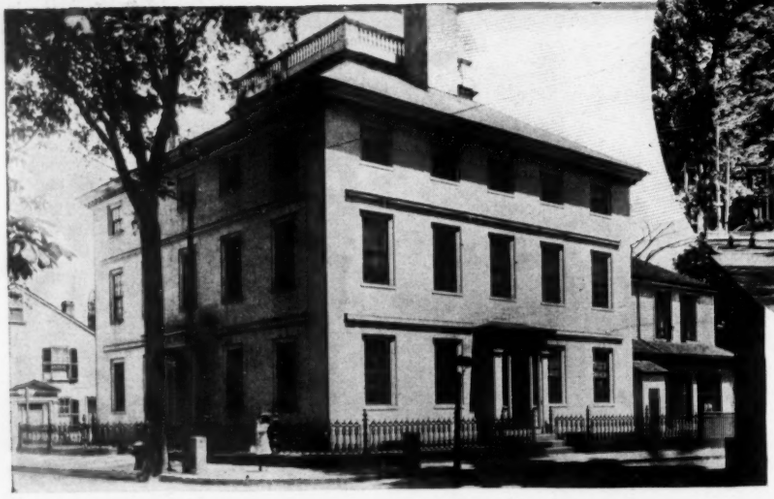
Having promised to visit Harvard University, Washington went from Charleston, by way of Somerville, to Cambridge, where he was received by President Willard, head of the institution, who read an address of welcome. The president then inspected the college buildings, the principal one of which is Harvard Hall, a structure of hallowed traditions of famous men who have studied within its walls.

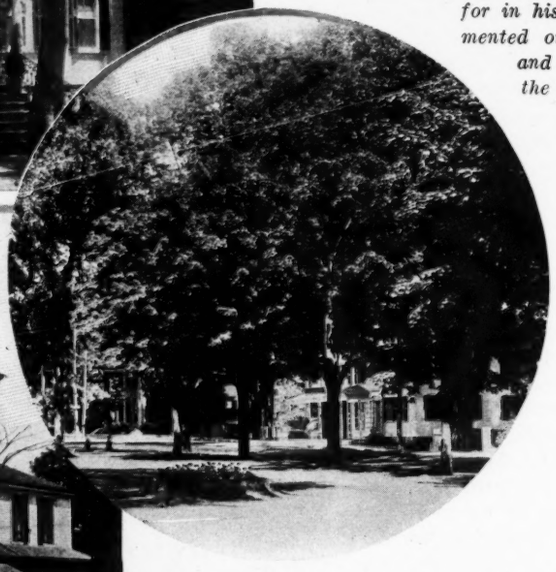


That same day, Washington headed for Salem, passing through Medford, Saugus and Lynn, where his honorary escort turned back and where he detoured to Marblehead instead of going directly to the old haunt of the witches. At Marblehead, the selectmen received him and he dined with Colonel Glover at the home of Mrs. Lee, which still stands in an excellent state of preservation.

Washington reached Salem early in the afternoon, the trip from Marblehead being only a short ride, and was greeted with the ringing of bells and the boom of artillery. Just before entering the town, the president left the coach and mounted a handsome white horse, one of four given him by the king of Spain, and was met by a reception committee, headed by Abijah Northey. He was escorted to the home of Joshua Ward, the first private residence in which he spent the night on his New England tour, as he had made it a rule not to accept lodgings from private persons.

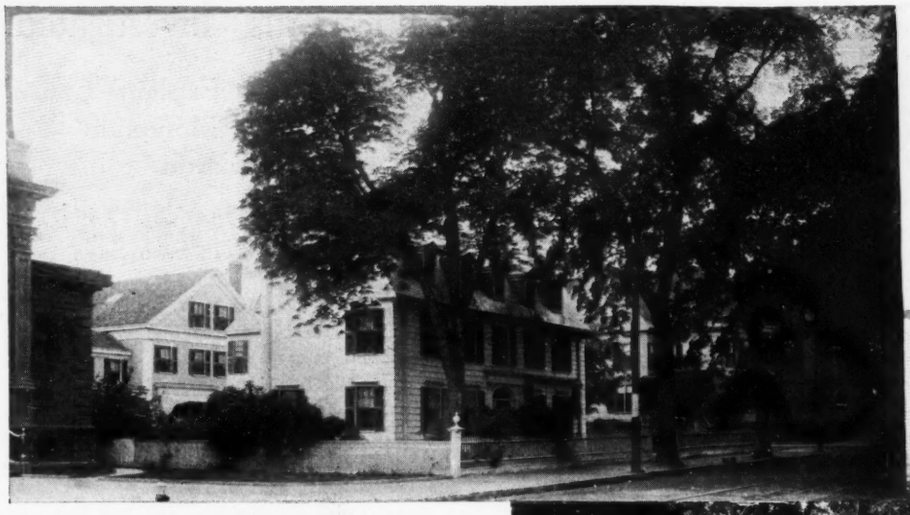
The event de luxe in connection with Washington's visit to Salem was the ball given in his honor at the Assembly house in Federal street, where the beauty and chivalry of the town and the surrounding country assembled to pay homage to the president. Doubtless, Washington enjoyed himself, for in his diary he commented on the "beauty and brilliancy of the ladies."



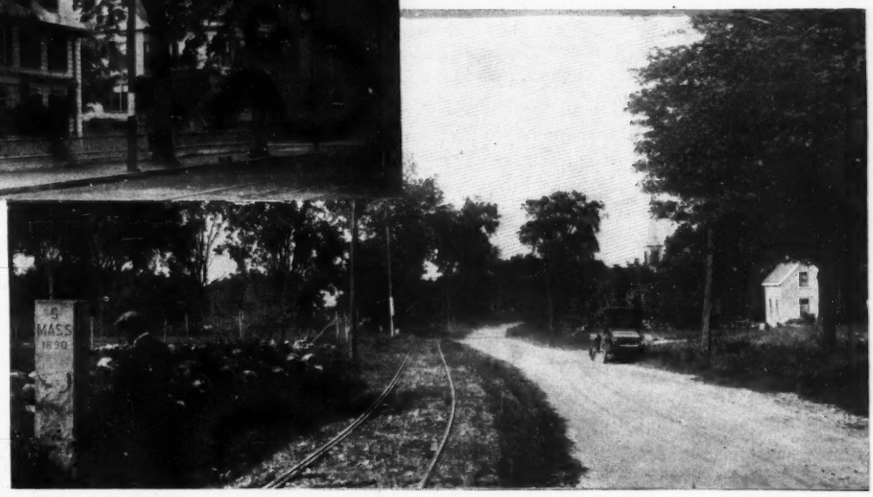


Starting early upon his journey of the following day—October 30—Washington passed through Beverly, where he had breakfast at the home of George Cabot, an ancestor of Senator Henry Cabot Lodge. The house, which is one of the best preserved of any in which the president was entertained, now is occupied by a historical society.

At Ipswich, Washington's journey was halted by a throng of residents and a company of militia, assembled on the village common to salute him. After making a short address, the president was escorted to the home of Mrs. Homans, at the right of the common, where he had dinner. The house is shown at the extreme right of the illustration but it has been much altered since Washington's visit.



Newburyport was Washington's night stop on October 30. Here he had the guest room in the former home of Nathaniel Tracey, now the public library and greatly enlarged. Directly across the street is the Tristam Dalton house, the home of an early United States senator, where the president had breakfast.



Leaving Newburyport before sunrise on the last day of his journey, Washington crossed the state line between Massachusetts and New Hampshire at Seabrook. To reach Seabrook, he had to cross the Merrimac river over an old chain bridge where a salute of twenty-one guns was fired.

Reaching the northern terminus of his tour, Washington spent 3 days at Portsmouth before starting out on the return trip. He put up at Colonel Brewster's tavern, which burned to the ground in 1813, but there are other relics of his visit that have been spared. He was entertained at the home of Hon. John Landon, now occupied by a Landon and regarded as one of the finest colonial mansions in New England.

During his stay in Portsmouth, Washington also visited the home of his secretary, Tobias Lear, paying his respects to the foster mother of his aide and spending several enjoyable hours in her company.

After 3 days of fishing, visiting and church-going, Washington was the guest of honor at a reception, given at the Assembly house on the eve of his departure from Portsmouth. The building has been altered somewhat, but it looks about the same today as it did 127 years ago. On his return trip to New York, the president covered much the same route as he did in his journey to Portsmouth with the exception that he detoured through Exeter and Haverhill and visited Lexington on the drive to Boston.

Rally to Standard

Central Illinois Garagemen Say Independents Raised Prices First

Situation in Various States Becomes Much More Acute

CHICAGO, Feb. 14—Reports from central Illinois are to the effect that garage proprietors and others who deal in gasoline are rallying to the defense of the Standard Oil Co., in relation to the charges that that corporation is responsible for the advance in price of gasoline. The dealers have been closely watching the antics of the market and claim to have discovered that the independent companies have been the first to announce an advance, instead of their rival. They have reached the conclusion, after careful investigation, that the Standard has adopted the policy of waiting for the other fellows to announce an advance. Thereupon, the Standard proceeds to follow suit.

Much will be made of this if the courts should take action on the increase in price, especially if the Standard is made principal defendant. It will take pleasure in directing attention to the record, reading from it that the Independents are the ones which always led off in announcements of an advance in price. The argument will doubtless be that the Independents would not have been guilty of this but for market conditions.

When suit is filed, it might develop that a closer inspection of the records, splitting time to a fraction of a minute, may show that on some occasions, the Standard was a little ahead in getting to the public with an advance. However, many of the central Illinois dealers are inclined to believe that there is a tacit entente between the Standard and the Independents. Perhaps this was never put into spoken words, much less in writing. Last summer, the price of gasoline was really too low to pay any returns upon the investment, it is said. In some places it retailed for 9 cents per gallon; 12 cents was regarded as a live-and-let-live price. The Standard was quoting somewhat lower prices than the Independents, just as it had been doing right along. Chicago prices remain as last week—17½ cents, tank wagon basis.

Toronto Pays 30 Cents

Toronto, Ont., Feb. 12—Local gasoline supply houses state that before the winter is over motorists will probably have to pay 35 cents per gallon, or an increase of nearly 20 per cent over present prices. Since last summer and early fall the retail price of first-grade gasoline has advanced from 18 cents a gallon to 30 cents, an increase of over 66 per cent, and retail dealers claim that at the present price their margin of profit is a good deal less than it was last summer. Only this week the wholesale dealers announced a further advance of 1 cent per gallon, which will mean that as soon as present supplies are exhausted retailers will have to advance the price of the product or sell it to the consumer at a loss.

K. C. Price Up 1 Cent

Kansas City, Mo., Feb. 14—Independent oil companies boosted the price of gasoline here another cent last week to 17.8 cents, the second increase this year. The Standard Oil Co. did not meet the raise, still selling at 16.8 cents.

Prices of crude oil at the production centers of Kansas and Oklahoma remain unchanged after the recent raise to $1.30 per barrel.

22-Cent Gas at Savannah

Savannah, Ga., Feb. 12—The price of gasoline has jumped to 22 cents, retail, and dealers expect another half-cent raise shortly. The Standard Oil Co., without warning, advanced the wholesale price 1½ cents, and it is understood that a further advance of half a cent will be made by the same company. The Texas and Gulf companies simultaneously moved their prices up to correspond. Dealers have raised their prices accordingly. The only reasons ascribed by the various companies for the raise is that orders for a 2-cent jump had been issued from headquarters.

Retails at Wholesale Price

Phoenix, Ariz., Feb. 12—The wholesale price of gasoline has jumped from 20½ to 21½ cents in Phoenix. The local Ford agent continues to retail gasoline at the wholesale price. Other dealers are charging their customers from 22 to 25 cents.

One Cent Advance in Los Angeles

Los Angeles, Cal., Feb. 12—The price of gasoline in Los Angeles advanced another cent this week, but all the supply stations and garages did not adopt the new schedule. Instead of raising, some gasoline vendors reduced the price 1 cent. As a result the signs in the city read 15, 16 and 17 cents, whereas in the past the price has been uniform. Outside the city, in Pasadena, Santa Monica, Long Beach, Santa Ana, San Diego and Santa Barbara, the standard price of 17½ cents has been set. San Franciscans are paying 18 cents a gallon for gasoline, an advance of 2 cents.

TEST VALIDITY OF LICENSE LAW

Memphis, Tenn., Feb. 12—Leopold Lehman has filed suit against County Court Clerk John C. McLemore to test the validity of the motor car tax law. Lehman, who is a retired member of the Memphis bar, contends that the tax on cars is unconstitutional, as the mere ownership of a car, he states, cannot be considered taxable privilege. Mr. Lehman has paid the tax under protest and now is suing to recover. The suit was brought before a local magistrate and will be tried shortly.

Petromortis Investigated

Federal Booklet Explains Cause of Carbon Monoxide Formation

Poisonous Gas Due to Too Rich Mixtures, Uncle Sam Says

RECENT cases of sickness and death due to carbon monoxide poisoning in mines and in garages has led the department of the interior, bureau of mines, to publish a pamphlet under the name of Bulletin 74, covering the subject of gasoline locomotives in relation to safety and health.

Important conclusions are reached in this booklet illustrating the relation of proper carbureter adjustment to the amount of carbon monoxide produced, and it has been shown in examining mine engines that the unskilled or careless motorman may use fuel enough to produce noxious gases and obtain about the same power as a skillful motorman obtains from a smaller quantity burned to a much smaller volume of comparatively innocuous gases.

An Illustration Given

To illustrate this fact, a four-cylinder engine, 5½ by 5, was made to develop full power at full rated speed and the amount of fuel was increased from .74 pound to 1/18 pound per brake-horsepower hour. The amount of each of the noxious constituents, carbon dioxide and carbon monoxide, of the resulting exhaust gases of each of the several fuel rates, was accurately determined, and the CO constituent—the most poisonous—varied from 2 cubic feet at .74 pound of fuel per brake-horsepower hour to 9.5 cubic feet at 1.18 pound of gasoline per brake-horsepower hour.

The CO_2 constituent ranged from 6.8 cubic feet at .74 pound of gasoline per brake-horsepower hour down to 3.5 cubic feet at 1/18 pound of gasoline per brake-horsepower hour.

In giving the causes for the formation of carbon monoxide—which is the agent which causes the poisoning as well as suffocation—the bulletin states, "Carbon monoxide is the result of incomplete combustion of fuel. The combustion is affected by the relative quantities of air and gasoline, the completeness of vaporization, and of mixing due to the carbureter and manifold design, the degree to which the exhaust gas is mixed with fresh gas, the degree of compression, the timing of the ignition and speed of the engine, the adjustment of valves, temperature of jackets, lubrication, method of speed control, quality of fuel and probably other variables." There is much information of value in this government bulletin and it should be thoroughly digested by the motoring public.

Starts Time Payment

Arrangements Made by Factory for Financing Installment Purchases

Owners to Get Model 6-30 for $482.50 Down

DETROIT, Feb. 11—The Chalmers Motor Co. has made arrangements with the Agricultural Credit Co., Chicago, for the financing for dealers of the time sales of the model 6-30 Chalmers car. This is the model which was brought out late last year and which sells for $1,050. By the plan which has been worked out the customer is required to pay $450 cash on receipt of the car and $32.50 to cover the cost of insurance for 1 year and interest. The balance he pays in eight monthly payments of $75. The item of $32.50 covers interest on the notes at 6 per cent and the actual cost of the insurance for a year against fire and theft on 80 per cent of the list price of the car.

The Agricultural Credit Co. buys the notes from the dealer or distributer less a very small brokerage. This concern is a large banking house which has carried on a farmer's credit plan for a number of years, enabling the farmer to finance his farm until revenues from crops came in, and its action in extending its field to cover motor cars is another instance of the recognition which high banking circles are taking of the motor vehicle industry. The directorate and official roster of the Agricultural Credit Co. contain the names of some of the foremost bankers of this country.

N. G. E. A. TO TALK TRACTOR

Chicago, Feb. 11—The standards committee of the National Gas Engine Association has been working for some time past on tractor standards which are going to be of considerable help, not only to the tractor manufacturer, but to the dealer and user. The committee has made such rapid progress in this work, that Chairman Kratsch has called a meeting of the committee to be held in the Sherman Hotel, Chicago, March 25. At this meeting the proposed standards will be discussed, and the recommendations revised for final adoption at the annual meeting of the Association next June.

Tractor manufacturers have been asked to attend this meeting and to take part in the discussion, as well as to make such recommendations as they see fit, and which they deem advisable.

MONROE-CHEVROLET MERGER OFF

Flint, Mich., Feb. 12—R. F. Monroe, president of the Monroe Motor Co., stated that while negotiations had been pending as to a possible consolidation with the Chevrolet Motor Co., this will not take place. In fact, the Monroe company again is occupying the entire premises of its plant, part of which was leased last year to the Chevrolet company.

A new five-passenger Monroe soon will be placed on the market, with the chassis and a motor similar to those of the present Monroe model.

The output for this year is to be 10,000 cars and the working force, which is now 130, is to be gradually increased to 700.

It has been arranged between the Chevrolet and Monroe interests that pending the completion of the new Chevrolet axle plant, the Monroe company will continue to make axles for the Chevrolet, while the Monroe Body Co., Pontiac, will make the bodies for the new Chevrolet Four-Ninety runabout.

PREMIER ENGINEERING PERSONNEL

Indianapolis, Ind., Feb. 15—The Premier Motor Corp. has announced the personnel of its engineering bureau. This will be headed by E. G. Dunn, former chief engineer for the Northway Motor Co., Detroit, Mich., with whom will be associated Charles S. Crawford, who for the last 7 years has been chief engineer of the Cole Motor Car Co., this city, and J. L. Yarian, designer and builder of the Curtiss, V-type, multiple-cylinder aviation motor. Just who will succeed Crawford and Dunn is not known at the present time.

Big Merger Completed

Combine of Cole, Rutenber, Warner Gear and Other Interests Arranged

NEW YORK, Feb. 15—Special telegram—Final arrangements for the merger of Indiana motor car and parts manufacturing interests which has ben in development for several months were made in New York today. Details of the arrangements cannot be made public at this time, but it is understood that the merger will include the following Indiana concerns: Cole Motor Car Co., Indianapolis; Rutenber Motor Co., Marion; the Warner Gear Co., Muncie, and others.

J. F. Morrison, secretary and treasurer of the Cole company, stated that it was his understanding that the deal is to be closed today, but he was not in possession of the final details. The Ball Brothers, of Muncie, stated that they were represented at the conference, but whether or not the Inter-State Motor Co. would be included in the deal, they were not in position to say at this time.

It is understood that A. F. Knoblock, former general manager of the Northway Motor and Mfg. Co., is to be president of the new combine and J. J. Cole, president of the Cole Motor Car Co., is to be vice-president and sales manager.

Studebaker Time Plan

Another Detroit Manufacturer Arranges for Time Sales by Agents

Rates Are One-third Down and Rest in Installments

DETROIT, Mich., Feb. 11—Arrangements have just been completed by the Commercial Investment Trust, with offices in New York and St. Louis, whereby Studebaker dealers have been placed in an advantageous position to finance the sale of Studebaker cars on deferred payments. On either of the Studebaker models the dealer is able to offer to sell the car to the customer for one-third down and the balance in eight equal monthly payments. The buyer of the car pays the regular list price.

It often develops that a motor car buyer is anxious to get his car immediately but cannot pay the full amount at the time. Because of anticipated income, he can pay part and wishes credit for the balance. The plan of the Commercial Trust enables the dealer to handle such sales without tying up his own capital, and is a particular advantage for the dealer working on limited capital. The notes which the dealer gets from his customers are converted into cash by the Commercial Investment Trust, which assumes the collection of the notes.

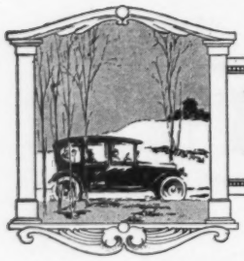
The arrangement with the Commercial Investment Trust is not intended to interfere with local banking arrangements which Studebaker dealers have, but is a provision for more extensive banking facilities, at the option of the dealer.

The Studebaker Corp. states that it has no financial interest whatever in the Commercial Investment Trust, having simply been instrumental in effecting the plan for the benefit of its dealers. The Commercial Investment Trust and the Studebaker dealers handle their banking arrangements independently.

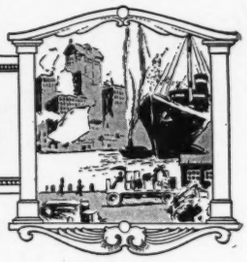
BUILDS 175 MOTORS DAILY

Muskegon, Mich., Feb. 14—Within the next 12 months it is expected that the pay roll of the Continental Motor Mfg. Co., here, will have 5,000 names on its list, or an increase of 1,500 to 2,000 over the present total. The company is making a strenuous effort to get more workers and in advertisements in many states mentions that Muskegon is to have Central League baseball as a further possible inducement for the men to come.

It is said that the average daily output is now 175 motors at the local plant, which, if maintained during 300 working days, would be 52,500 for the year. Orders on hand, however, are of such a volume that the output should be more than 225 motors a day, or at the rate of 67,500 a year.



EDITORIAL PERSPECTIVES



Tractorizing the Farm

WITH $1,000,000 worth of horses and mules sold each week from the Kansas City territory, and with the first agricultural motor tractor exposition held in that city the same week as the annual motor show, the motor car manufacturer should be positively assured that the day of motorizing the farm has arrived. The places of horses and mules sold must be supplied by motor power, and the agricultural motor tractor is developing at a good pace today to fill the gap.

TO the farmer, the agricultural tractor is no stranger. It has been manufactured in considerable quantities for several years, but only during the last couple of years has production in quantities started. The farmer in the great Mississippi valley has been purchasing nearly 50 per cent of the motor cars for the last 2 years. Before that he had been a considerable buyer of cars; and for years previously had been using the stationary explosive engine to pump his water, shell his corn, grind his grain and perform other farm jobs. He looks upon it today with more favor than the horse, and if he hesitates to install the agricultural motor and sell his horses, it is because he is not yet satisfied with the agricultural tractor and is not convinced that it will perform all of the farm jobs as he would like.

THE agricultural tractor as it exists today meets all of the requirements of plowing, harrowing, disking, seeding, drawing binders and other farm machinery, but does not yet completely fill the horse role. The satisfactory motor cultivator has not been developed. Then, too, several of the tractors are too large. Many of the older types are huge machines that will haul ten or more plows and are ideal on large farms, but the farmer of a quarter section, 160 acres, feels that he needs something smaller and also that he will have to keep several horses in addition to a tractor. It is for the farmer of 160 acres that big-production tractor builders must manufacture. There are over 150,000 of such farmers alone in the state of Minnesota and of this number it is a sane estimate that 100,000 are capable of purchasing tractors if they cost less than $1,000. Add to this the ten other agricultural states and you at once have a possible market of well over a million tractor buyers, a market that lies ready as soon as the machinery is developed that can convince the farmer of its feasibility.

IT is not to be expected that the satisfactory tractor of today or tomorrow must perform every possible farm function, rather the farmers are going to continue keeping horses for breeding purposes and some of these for many years will continue to perform farm work. The tractor will be the 90 per cent worker on the farm. It can work 24 hours in the day for weeks at a time, providing work gangs can be obtained. Thus does the great advantage of the tractor show itself in that the crops can be put in more quickly, which is a prime consideration. The same speed is essential in harvest time; in fact, speed applies to many of the farm jobs. The horse capacity cannot be doubled like the tractor. The tractor when idle has little upkeep cost, but the horse works only one-third the time and must be kept the other two-thirds.

Army Reserve Corps

IT is encouraging to know that several truck users in such large cities as Chicago and New York have volunteered to place one or more of their trucks at the use of the militia for demonstrations on Saturday afternoons during the coming summer. The movement should receive general support from truck owners whether they have large fleets or small. One of the greatest troubles during the early days of the European war consisted in the positive dearth of good drivers. The war department made the mistake of trying to develop new drivers in a few weeks.

THERE was only one result, the premature destruction of many trucks. Drivers were employed who actually did not know how to drive the machines. Several machines were wrecked before they had gone a mile. The army reserve corps movement is today requesting the offer from business corporations of one of their trucks for use on perhaps three or four Saturday afternoons during the coming spring and summer. The trucks will be used to transport soldiers from one point to another or hurriedly mobilize regiments at some point. This co-operative work is highly beneficial. It is primarily sound in that it plans to take real drivers who know how to take care of those trucks, and who also know how to get the last ounce of energy out of the vehicle without needlessly injuring it. Contrast such a driver with an amateur, who perhaps never drove a motor truck, and who takes the wheel of a strange truck.

THE net result is that the offering of one truck for three or four demonstrations per season will not prove an injury to the vehicle and will be of great assistance to the militia. What is needed with these green army drivers is to educate them in the co-operative work of mobilization. The drivers know their trucks, but they must be schooled in operating in convoys. Acting in concert, not as an individual truck, but as one in a caravan of 100 is what is needed. There can be no better education in this work that primary mobilization exercises such as proposed by the army reserve corps. Not only should the movement be supported by private owners but dealers handling trucks can take advantage of this work to their own advancement. Frequently some weaknesses in a truck will be discovered in such a demonstration that might not be discovered in weeks or months of normal stop-and-start business service. The present war is writing new volumes in motor truck history, and these Saturday afternoon mobilizations will also have their lessons for good.

WARNING!

BEWARE OF SUBSCRIPTION SWINDLERS

MOTOR AGE desires to call its friends' and readers' attention to the many swindlers at work throughout the country soliciting subscriptions for MOTOR AGE as well as other popular periodicals.

We urge that no money be paid to strangers, even though they exhibit printed matter, apparently authorizing them to represent us, and especially when they offer cut rates or premiums.

Should you have reason to suspect the members of your community are being swindled, notify your chief of police or sheriff promptly.

The safest way to buy a subscription is to order from your newsdealer or from the publishers direct.

Gasoline and Whisky

Booze Smuggling, a la Motor, Is a Very Fine Art in Arizona

Extra Tanks and False Floors Used by Resourceful Bootleggers

PHOENIX, Ariz., Feb. 16—Bootlegging has become one of the principal industries of Arizona since the state went dry on the first day of last year, and the motor car is the principal tool employed by the most successful importers of the forbidden liquor.

A young man named Reynolds and his wife owned a car and little else when the prohibition law went into effect. For nearly a year they made regular trips between El Centro, Cal., and Phoenix, each time carrying a number of kegs and bottles that were retailed at great profit to the thirsty of Arizona's capital. Finally they were captured and Reynolds now is waiting trial.

The officers at Clifton became suspicious of a young man who made frequent trips to Lordsburg, N. M., with his big Velie. They arrested him one night and examined the car. Beneath a false floor, which had been fitted in the tonneau, were 80 quarts of liquor.

It is said that bootlegging is more of a fine art in the mining camp of Miami than anywhere else in Arizona. One suspect recently arrested, had fitted copper compartments under the seats of his car which were full of corn whisky, when he was taken into custody.

More than one machine has been driven oven to California and shipped back to Arizona with the tank full of something that was not gasoline.

Two Los Angeles youths made a business of stealing Fords in that city, loading them with liquor, driving over to Arizona and selling cars and cargoes. They sold the Fords so cheaply that suspicion was directed to them and they were extradited to California to face trial for grand larceny.

It is almost impossible to import liquor into the southeastern part of the state without the aid of a motor car. Joy rides across the New Mexican line to such uninteresting places as Rodeo have become strangely popular. Sometimes the joy riders load the car with liquor but often they take along women friends who conceal the bottles about their persons. Even if some suspicious officer searches the car, he is not likely to be so ungallant as to search the garments of a lady.

WOMEN DRIVERS CAREFUL

Boston, Feb. 16 — The Massachusetts highway commission has just issued some statistics that answer the question of whether or not women figure in more accidents than men. Because a bill was put in the legislature to prevent women driving cars of more than 30 horsepower, the highway commission was requested to furnish some facts and figures. These show that women drivers are not dangerous on the highways. The commission reported that out of 297 fatal accidents last year in which motor vehicles were involved, women figured in 7, or 2⅓ per cent.

There was 528 relatively serious accidents which were investigated and reported by the commission's examiners, and women operators were involved in only 13 of these or 2½ per cent. Out of a total of 99,199 private operators in Massachusetts, women number 8,680. So they constitute 8¾ per cent, yet were involved in only 2½ per cent of accidents, a very fine showing.

There were 90,519 men licensed as private operators, and 34,736 professional chauffeurs, a total of 125,255 licensed men operators. These 125,255 men operators figured in 280 fatal accidents, or one fatal accident to every 432 licensed men.

$100 to Boy Drivers

THERE are many boys that drive the family car while father sits beside them, leaving the handling of the car to the boy's judgment. Numerous interesting experiences must have developed, in which the boys have been the central figures. It is with the thought of passing these experiences on to others that Motor Age is offering prizes for the best stories or articles submitted and accepted for publication in Motor Age's annual touring number, which this year will bear wate of March 30.

This offer is open to every American boy and may touch upon long treks taken in cross-country touring, or short journeys for the week end. The novel experience is wanted rather than the commonplace. For the best acceptable manuscript of 1,000 words or less, accompanied by photographs for illustration, received up to March 20, 1916, Motor Age will pay

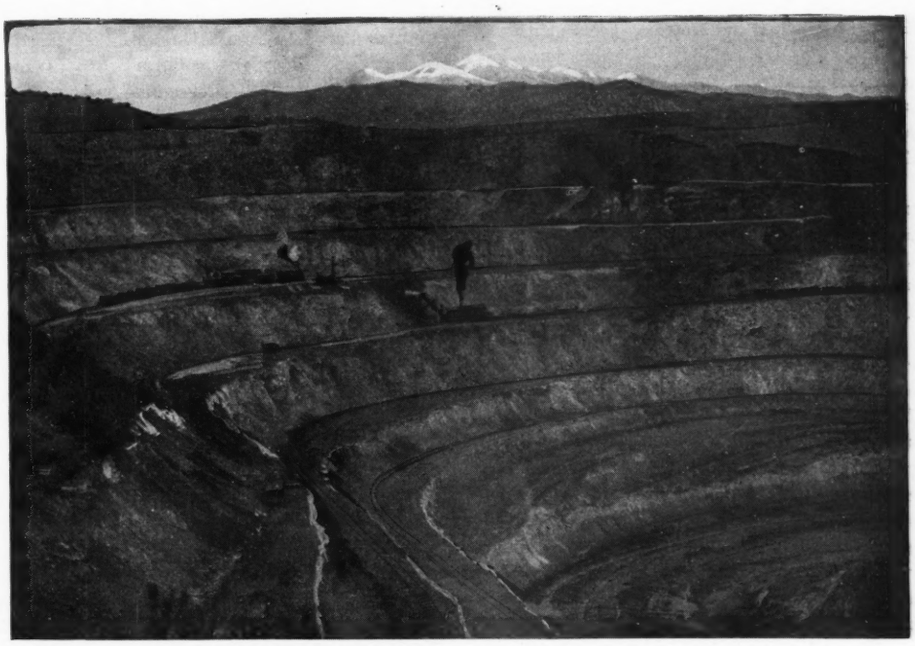
$50

For the second best manuscipt of the same approximate length and accompanied by photographs

$25

A third prize of $15 and a fourth of $10 will be given for manuscripts accepted under the same conditions as those mentioned above.

See America First — See America Now



EDITOR'S NOTE—This is the sixty-sixth of a series of illustrations and thumb-nail sketches of the scenic and historic wonders of America to be published in Motor Age for the purpose of calling the attention of motorists to the points of interest in their own country.

NO. 66—NEVADA'S PIT OF PLENTY WHERE THE TRAIL DIVIDES

NEAR Ely, Nev., at a point where the road to Los Angeles branches off from the Lincoln highway, is the enormous pit of the Nevada Consolidated Copper Co., from which 9,000 tons of ore have been taken daily for the past 7 years and where there is sufficient ore in sight to keep the workers busy for the next 30 years. From the road, the great pit looks like an amphitheater of the gods, the rock having been cut away to leave great circular tiers, similar to the seating arrangements of a stadium. Some of the working paraphenalia used in the mine may be seen in action in the illustration. This set seems to be the original cornucopia.

Extends Inforcement of Anti-Trust Law

Dealers Upset by New Suits on Territorial Sales Restrictions in Texas

AUSTIN, Tex., Feb. 12—It is now very evident that Attorney General B. F. Looney intends to make his prosecution of the manufacturers of motorcars of the broadest possible scope. It will extend to every concern that is doing business in Texas under the existing selling plan. The fact that much, if not all, of the tire and accessory business is carried on under the same plan as that of selling cars leads to the belief that the state's prosecutions may extend to those branches.

During the past few days the attorney general's department has filed suits against the Studebaker Corp., the Willys-Overland Corp., the Saxon Motor Co., the Hudson Motor Car Co., the Maxwell Motor Sales Corp., and the Hupp Motor Car Corp. The two original suits, against the Cadillac Motor Car Co. and the Olds Motor Works, have been settled by the granting of the injunctions for which the attorney general prayed to restrain them from continuing their selling contracts in Texas.

In each of the cases that have been filed against car manufacturers the charge is made that their existing sales contracts in Texas are in violation of the anti-trust law, because they contain territorial restrictions and that some of them have resale price stipulations. In none of the suits is money penalties asked for the alleged violations of the law.

Attorney Makes a Statement

It is the state's contention that the companies have no right under the law to place any territorial or price limitations upon a dealer in the sale of cars. To make himself clear on this point, Attorney General Looney has issued the following statement:

"The sales contracts made between the car factories and their respective dealers in this state form the basis of the suits. In these contracts the factories require their dealers to agree not to re-sell cars purchased from them at any place in the State of Texas outside of a certain defined and designated territory. In many of the contracts it is further provided that dealers must re-sell the cars at prices fixed and named by the factories. The contracts involved are in no sense agency contracts but they are sales contracts by the terms of which the title to the cars purchased by the dealer passes unreservedly from the factory to the dealer. The state contends that the dealer, when he has purchased the cars, has the right to re-sell the same at any place he may desire and at prices he may see proper to make. The contracts or agreements between the factories and their dealers whereby the dealers are restricted in their right to resell the cars purchased from the factories to a certain defined territory and to a certain fixed price are unquestionably in violation of the anti-trust statutes of this state."

It is claimed by the dealers of Texas that the selling plan under which they have been operating is necessary for carrying on the business. Upsetting existing contracts means that a chaotic condition of the trade will follow, it is stated. Already a wide-spread movement among the dealers has been inaugurated to obtain a repeal of the obnoxious provision of the anti-trust law under which the suits have been brought. Even should the legislature remedy the situation by passing a repealing measure, it will be nearly a year before that can be done as the next regular session of the law-making body does not convene until January, 1917.

Dallas Dealers to Fight

Dallas, Tex., Feb. 11—Dallas motor car dealers representing factories as distributors over the State of Texas are expecting to meet and form a common defense against the views of Attorney General B. F. Looney on their system of arranging selling contracts in which he charges they violate the Texas anti-trust law.

Motor car men in Dallas today declared emphatically that the industry of Texas centered at Dallas, representing the investment of millions of dollars would be destroyed unless the views of the attorney general are not changed. It also is predicted that unless something is done many of the big companies would leave the state instead of building their factories and assembling plants in Texas. At the present time local dealers declare that business is blocked and no contracts are being made.

Late Wednesday afternoon advices were received in Dallas that the attorney general had also filed suit against the Studebaker and the Overland companies. Both companies had planned to establish branch factories in Dallas. This may alter their plans.

PACKARD PAYS CITIZENSHIP COST

Detroit, Mich., Feb. 14—The Packard Motor Car Co. has announced that it will pay the fees required of any of its alien employes who may desire to take out first papers toward American citizenship. This follows the announcement made January 31 to the effect that only American citizens, or those of foreign birth who have relinquished their foreign citizenship and who have filed their applications for citizenship, will be given promotions to positions of importance, and that loyalty to the United States is a pre-requisite to employment.

Practically every man of foreign birth who stands in the line of men, to be seen any day seeking employment at the Packard plant, has his first papers tightly clutched in his hand. This fact shows that even those who have not yet mastered the language have thoroughly learned the meaning of the new Packard policy.

The company offers practical help in training foreign-born employes to become citizens. One class in English for foreigners is being conducted several nights a week at the factory, and two more classes are in preparation. Two welfare department men are studying the best methods of teaching English, so as to be able to qualify as instructors.

FAVOR RECIPROCITY BILL

Washington, D. C., Feb. 12—Evidence accumulates that the Adamson bill will find a generous support in congress, to an extent that will insure its passage within the next few weeks. Briefly, this measure, championed by the American Automobile Association, provides that a home state registration number will take its possessor to all parts of the United States for whatever period the motorist may elect. Representative William C. Adamson, of Georgia, who fathers the bill, is the chairman of the committee on interstate and foreign commerce, and he has received assurances of approval from members who hail from all parts of the country.

It would not be unreasonable to assume that the senate would be likely to accept the approval of the house, in view of the fact that this legislation now has a country-wide application because of the astounding increase of self-propelled vehicles.

GENEMOTOR PRICE RAISED

New York, Feb. 14—In line with the present high cost of materials and the corresponding prediction of higher prices, the General Electric Co. has followed the lead of a few of the automobile makers by advancing its retail price of the Genemotor lighting and starting system $10 to $85. This change applies to the 1916 shaft drive type.

Coincident with the announcement of the change in price it is announced that the General Electric Co. has taken out a license to produce the Genemotor under the Coleman starter patents, Nos. 745,157 and 842,827. These patents were declared valid in the Court of Appeals last December, after 2 years of legal controversy in the local courts.

PROTEST ST. LOUIS TRAFFIC MEASURE

St. Louis, Mo., Feb. 12—The Automobile Club of St. Louis, the Real Estate Exchange and scores of individual car owners united in opposition to the proposed traffic law reform now being considered by the board of aldermen, at a public hearing here this week.

The strongest opposition was voiced against a provision in the pending bill whereby the parking of cars for more

than 1 hour in the downtown section of the city would be prohibited between 7 a. m. and 7 p. m. At the close of the hearing indications were that the aldermen might extend the parking time to 2 and perhaps 4 hours. At present there is no time limit and many business men bring their machines down in the morning and keep them in front of their places of business all day.

Only two men at the hearing favored the bill. They were the city street commissioner and a representative of the Team Owners' Association. Roy F. Britton, attorney for the Automobile Club, told the aldermen the measure, if adopted, would hit the "little fellow, the motorist who cannot afford a chauffeur," the hardest. A delegation of physicians protested that the proposed law would delay them in answering emergency calls if they could not have their machines near their offices at any time of the day. The bill also would prohibit the making of a complete circle turn, even at street crossings.

TRACTOR TO MOVE ARTILLERY

Lawton, Okla., Feb. 12—The use of tractors for hauling heavy field artillery is being tested by a board of army officers at Fort Sill, near here. The board is composed of Colonel Adams, Captain Bryden and Lieutenant McGlachlin. The tests will continue several days and only preliminary results have been announced. These are to the effect that the tractors show a big advantage over horses in the handling of cannon.

One Car for Each Nine Families in U.S.

2,242,788 Passenger Vehicles and Trucks in Country—A Gain of 40 Per Cent

NEW YORK, Feb. 15—There are 2,423,788 motor cars and trucks in use in the United States. This figure is the total number of registrations in the country January 1, 1916, all duplicate registrations of which records are available being deducted. This is a gain of 686,998 cars and trucks or a gain of 39.5 per cent over the 1,736,790 registered up to the end of 1914. Contrary to the general impression, over half of this increase was made during the latter half of the year.

There is one car to every thirty-eight people living in the United States. This means that out of every nine families in the country one is the proud possessor of a motor car.

Refuting the frequent statement that the buying power of the United States is nearing its limit so far as motor vehicles are concerned, we may point to the registration statistics. These form a foundation for conclusions which indisputably refute all contentions of these pessimistic prophets.

During 1915 the production of cars and motor trucks by the manufacturers of the United States reached a total of nearly 900,000 vehicles, a goodly percentage of these being exported to Europe, Asia, South America, in all, eighty countries in different sections of the globe, the number of cars and trucks shipped abroad increasing each month, as shown by the government export statistics, the increase for the year being 250 per cent, while the estimated value is $100,000,000. In considering the gain of 686,998 car and truck registrations during the year, it must also be remembered that a large number of cars must have been scrapped, their places being taken by new vehicles which necessarily makes the total gain shown somewhat lower than if these older cars had remained in commission in addition to the newer machines.

Country's Buying Power

The tremendous buying power of the country is well illustrated by the phenomenal increase in the number of cars and trucks in use in the United States since 1911. For that year a total of 677,000 was recorded which, during 1912, jumped to 1,010,483, a gain of 333,483. In 1913 the total was 1,253,875, or 243,392 more than were recorded as being in use during the preceding year. As shown by the 1914 and 1915 statistics mentioned above, the increase in the number of vehicles in use from 1911 to the end of 1915 is 1,746,788, or practically the total number of cars and trucks in use in this country a year ago. In other words, the gain in car and truck registrations during 1915 is almost as large as the total number in use at the end of 1911.

Taken in conjunction with the yearly production statistics, the registrations are specially significant. In 1911, American motor car and truck manufacturers produced 209,957 cars and trucks, their annual output increasing rapidly with each succeeding year. In 1912, a total of 378,261 vehicles left their factories, increasing to 450,000 in 1913, and for 1914 the figure of 515,000 given by the National Automobile Chamber of Commerce was held to be so conservative that it was from 5,000 to 15,000 below the actual production total for the year. The chamber estimated that 30,000 of the number given were commercial vehicles. During 1915 the same authority gives a total production of 892,618 cars and trucks, of which 842,249 were passenger cars and 50,369 were commercial vehicles. Over 200,000 freight carloads of motor cars were shipped during that year.

The total retail value of the cars and trucks built in the United States in 1915 was given as $691,778,950, of which $565,856,450 represented the passenger cars and $125,992,500 represented the commercial vehicles.

Eight states showed an increase in registrations in 1915 over 1914, this gain varying from 10,000 to 30,000 vehicles.

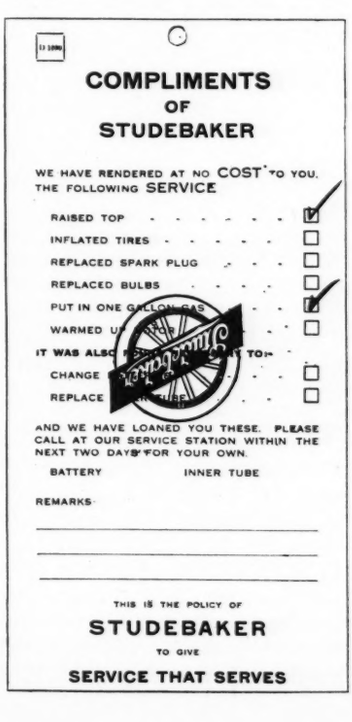
Studebaker Service Extends to Street

DETROIT, Mich., Feb. 11—Studebaker owners in Detroit who spend their evenings at theaters, clubs, hotels, or lodges need not worry any more about the cars they left standing outside. A novel extension of the service plan of the Studebaker Detroit retail branch provides for nightly inspection of every Studebaker car in the downtown district.

Twice every night a Studebaker service wagon, fitted out with all sorts of equipment, makes the rounds of Studebaker cars, while the owners are indoors. Those to which any form of service is administered are tagged, a card specifying just what was done. Service given is without charge to the owner. The service car operates on a regular schedule and it takes about 2 hours to make the trip.

If the motor is hard to start, as on a cold night, it is warmed up. If the tires are low, they are either inflated, or in case of a puncture, a new inner tube is put in and the owner is notified to call for his old tube. If lights are weak, the bulbs are replaced, or if necessary, the batteries are changed and the owner is instructed to call for his own next day.

If the motor is missing, new spark plugs are put in and the engine is tuned up generally. If snow or rain started to fall after the owner left his car and the top is down, the service crew raises it. If the gasoline supply is too low, a gallon is put in the tank.



Four Meets on Coast

Racing Season Opens at Ascot Park Track Washington's Birthday

Two Dates in March Also Reserved by Los Angeles Promoters

LOS ANGELES, Cal., Feb. 15—With the running of the Washington's Birthday sweepstakes at Ascot Park a week from today, the racing season of 1916 will be formally opened and California will be the center of activity for the following 2 months.

The work of rebuilding the Ascot Park speedway is practically completed and the new course will be open for practice this week. The pitch of the curves has been increased and a surface of asphalt-concrete laid.

The opening race, which will be 100 miles in distance and for prize money totaling $5,000, will be a battle royal between the native sons as with the exception of Eddie Pullen and Bob Burman, all the entries to date hail from the Pacific coast and include such stars as Earl Cooper, Barney Oldfield and Teddy Tetzlaff.

In addition to the Washington's Birthday sweepstakes, the local promoters will hold two other meets at Ascot Park for which two March dates have been reserved with the contest board of the American Automobile Association. The first meet in March will be held on the fifth when a series of short distance events will be run and $3,000 in purses offered. The second contest is scheduled for March 19 and will be a 200-mile free-for-all for $10,000 in prize money.

When the checkered flag drops for the winner of the free-for-all, the drivers will ship their cars to Corona to practice for the grand prize event of April 8. Entry blanks for this event were sent out last week and nominations will be received up to April 3.

Among the drivers now here are Burman, Pullen, Oldfield, Tetzlaff, Janette, O'Donnell, Cooper, Parsons, Lentz, Lewis, Goode, Durant and Ball. All of these have cars and are expected to start in the Ascot event. It is reported that Hughey Hughes and Dario Resta will be in Los Angeles and drive in the Ascot race although their entry blanks have not been received.

CHANGES MADE IN MAXWELLS

Indianapolis, Ind., Feb. 15—Several changes have been incorporated in the four Maxwells, campaigned as the Prest-O-Lite team, and under the direction of Eddie Rickenbacher. The cars, which were black last season, have been painted red and white for 1916 and fitted with bodies of a new design, with a view to overcoming wind resistance. The bodies are narrower and taper to a fish-tail rear end, while the driver and mechanician ride lower.

Rickenbacher predicts that the cars will be from 4 to 5 miles per hour faster than they were last year, when they were raced with but little opportunity for experimentation, being taken directly from the factory to the speedways. The best average made by the Maxwells in 1915 was in the elimination trials for the Chicago 500-mile motor derby, when they showed a speed of 105 miles per hour.

One of the Maxwells already has been fitted with its new body and Rickenbacher is warming it up on the local speedway before shipping it west for the Corona grand prize, his first 1916 start, in April.

TO DIRECT TWIN CITY CONTESTS

Minneapolis, Minn., Feb. 16—E. E. Gates, of Indianapolis, general counsel for the Speedway Association of America, and legal representative of the Federal league in its fight against organized baseball, has been named secretary of the Twin City Motor Speedway Co., to succeed Douglas Wheeler, and will be in charge of the concrete track at Fort Snelling. At the annual meeting, the number of directors was increased from twelve to fifteen, Mr. Gates, Phil Herzog of St. Paul, and M. H. Barnard of this city being added to the board. The course, which was wavy and uneven at the time of the 500-mile race in the fall, will be smoothed up this spring and two meets will be run in 1916. The Memorial day card will consist of four or five stock car contests of 5, 10, 15, 25 and 50 miles, and the feature event of the season, the 300-mile race, will be staged July 4. The general admission, including a seat, for this latter event has been reduced to $1.

SANTA MONICA AFTER CLASSICS

Santa Monica, Cal., Feb. 9—The famous Santa Monica road race course again is to be stirred with the roaring racing car and cheering thousands. Santa Monica is going to stage another speed carnival in November.

A racing committee has been appointed and authorized by the Santa Monica chamber of commerce to make formal application to the Motor Cups Holding Corp. for both the international grand prize and the Vanderbilt cup races to be held on the Santa Monica course next fall. It is the intention of the Santa Monica boosters to stage the Vanderbilt on Thanksgiving day, the grand prize to follow Saturday, 2 days later.

With three races on the Ascot speedway, February 22, March 5 and 19, and the Corona race, April 8, the Santa Monica people did not believe it would be as good for the sport to hold a race this spring as it would be to let the two classics end the 1916 season and bring the drivers to California for a series of races on the Ascot speedway next winter.

Talk Week of Racing

Elgin May Make Bid for Grand Prize and Vanderbilt Cup Sanctions

Plan to Raise $24,000 in Prize Money for Four Road Contests

CHICAGO, Feb. 16—Elgin is talking of securing a monopoly on the road races of 1916 and if a suggestion, made by local and Elgin racing enthusiasts, is adopted, will have a week of competition this summer instead of 2 days as formerly.

As they control the only bono fide road racing course in the country and as the Motor Cups Holding Corp. has refused to grant the Vanderbilt cup and grand prize for speedway or boulevard competition, the Elgin promoters are considering a plan to stage these two classics at the watch city in connection with the Elgin National trophy and Chicago Automobile Club cup events.

A definite decision probably will be reached at the annual meeting of the Elgin Road Racing Association, scheduled for February 23.

The plan for the road racing carnival extraordinary, now under consideration, calls for a meet of 8 days' duration, opening and closing on a Saturday and with a race on the intermediate Tuesday and Thursday. The Vanderbilt cup contest, with which the carnival will open, will be for cars of 350 cubic inches piston displacement or under and 300 miles in length. The closing race, the grand prize, will be a free-for-all and the contenders will drive 500 miles. The distance of the Elgin National and C. A. C. cup events will be cut from 300 to 200 miles but the piston displacement limit will remain the same as in 1915, 300 cubic inches.

The proponents of the four-race meet fix the total prize money at $24,000, this sum to be divided equally between the four events. In order to raise this amount, they propose that 2,000 tickets be placed on sale and that Elgin guarantee to dispose of half of them. These tickets will be listed at $10 apiece and will entitle the holder to a reserved seat on each of the 4 days.

WILL RACE IN HONOLULU

San Francisco, Cal., Feb. 14—Five California speed merchants will be among the drivers who face the starter in the motor races which are to be a part of the sport program of the Mid-Pacific Carnival at Honolulu. The five pilots sailed with their cars aboard the steamer Sierra last Tuesday. Those who passed up the racing campaign of Southern California for the Mid-Pacific competition are: Jack Graham with a National; "Dutch" Wentz with a Wentz Special; Lou Gandy with his Gandy Special; "Mickey" Riley with his

Riley Special and Jack Sledge with a National. All the cars are equipped with Master carbureters and several of the Honolulu cars also are to be Master equipped, the island agent having had six large racing carbureters shipped to him on the steamer Great Northern more than 2 weeks ago.

NO MORE RACING FOR DISBROW

Cleveland, O., Feb. 15—Louis Disbrow has driven his last race. The veteran dirt track campaigner, whose name is associated with the Jay-Eye-See and the Simplex Zip, will be married March 4 and he has promised the bride-elect that he will abandon the pursuit of fame and prize money. As a result, the Louis Disbrow Motor Sales Co. has been incorporated here with a capital stock of $25,000 to act as distributor of the Marmon in this territory. Disbrow is president of the company, the other officers being M. A. Hanna, vice-president; D. E. Hanna, Jr., treasurer, and Fred Grabien, secretary.

SIOUX CITY TO BUY CARS

Sioux City, Ia., Feb. 16—E. R. Schultz, manager of the Sioux City speedway, now is negotiating for the purchase of two Duesenberg cars, which will be constructed by Fred Duesenberg, of St. Paul, and entered in the various speedway events this season under the name of the local racing association. This deal, which is practically closed, will bring the total of speedway owned cars to twelve. Indianapolis has eight—the four Maxwells, the two Peugeots and the pair of Premier Specials—and New York two Delages, one purchased by Harry Harkness in the fall and the other by Carl Limberg in France this winter.

TOLEDO WEEK PLEASES

Toledo, O., Feb. 12—One hundred per cent increase in attendance, 100 per cent more sales, 100 per cent more live prospects. This tells briefly the story of the eighth annual Toledo motor show, which opened February 7 and closed tonight.

These estimates of increases are very, very conservative. Some claim that they sold 200, even 300, per cent more cars. One dealer said that he booked orders for sixteen cars as against two last year.

HARTFORD SHOW SUCCESSFUL

Hartford, Conn., Feb. 12—Quite the largest and best motor show ever given by the Hartford, Conn., dealers opened at the state armory this evening. Like all events of past season the show is being given by the Hartford Automobile Dealers' Association, Inc. In spite of snow storms a big crowd turned out for the opening. The dealers held parade through the principal streets of the city concluding at the armory. By reason of the fact that there are more members in the dealers' association this year the show is much larger than in previous years.

Ship 58,800 Motor Cars

Despite Transport Obstacles, Detroit Makers Break All Record in January

Bad Freight Conditions Met by Resourceful Methods of Carriage

DETROIT, Feb. 12—In spite of a serious handicap, due to the shortage of motor vehicle freight cars, Detroit manufacturers managed to ship approximately 58,800 motor cars of the passenger type during January. This figure was obtained by a careful canvas of the concerns here and is a close approximation to the actual number. Yet this rather large shipment would have been much greater had the makers been able to secure all of the railroad cars they wanted in which to convey the vehicles to their destination. Although in many cases the number of motor cars that left the city was greater than ever before in the history of the concerns in question, there are other big producers whose shipments were curtailed as much as 40 per cent by the lack of railroad cars. One big maker, for instance, shipped a little over 3,500 motor cars, and would have been able to ship 5,000 could the freight cars have been secured.

Yet with this shipping situation and the materials markets troubling them, the car makers nevertheless enjoyed the largest January in the history of the business here, taking the industry collectively. As the sales manager of one of the largest remarked to the writer, it is an unusual thing for dealers to be crying for cars at this time of the year, and never before have they been so insistent for them when the winter months were on. In fact, so anxious have some of them become for cars that they have actually driven them over the snow-covered roads to their own towns, rather than wait for freight shipping.

11,760 Carloads

The traffic department of the National Automobile Chamber of Commerce has reported total carload shipments for the whole United States for January to be 18,054. Although in some cases less than five motor cars make up a carload, and in others the number is greater, it seems logical to say that each freight car would average five machines. On that basis, the number of freight carloads leaving Detroit in January was 11,760. This figures to pretty near 65 per cent of the total number.

However, there can be no disguising of the fact that freight conditions are bad. In most cases the motor vehicle freight car is a special type, and while it is of use to other lines of industry as well as to the motor car maker, the latter is not in so good a position, for it is hard for him to utilize the other types of cars. But necessity has forced the traffic departments of the big companies to take whatever railroad equipment they can secure quickly.

As a result, it is not uncommon to see big shipments of motor vehicles on flat cars, and in some cases they are even utilizing gondola and other types of coal cars. These they box over and really make very presentable box cars out of them. Some of the makers who have made use of flats are the Studebaker Corp., Maxwell, Paige, the Overland in Toledo and the Velie at Moline, Ill. Wherever possible, these flat cars so far have been used only for the shipping of export cars to the coast.

That is, the export machines are very tightly boxed and no harm can come to them through open shipment in similar fashion to harvesting machinery, etc. Where the run is comparatively short, Studebaker has been using flats in conjunction with heavy tarpaulins, which they very carefully use to cover the cars against any weather conditions. The use of gondola cars is perhaps the most unusual adaptation of whatever can be secured in the way of railroad rolling stock.

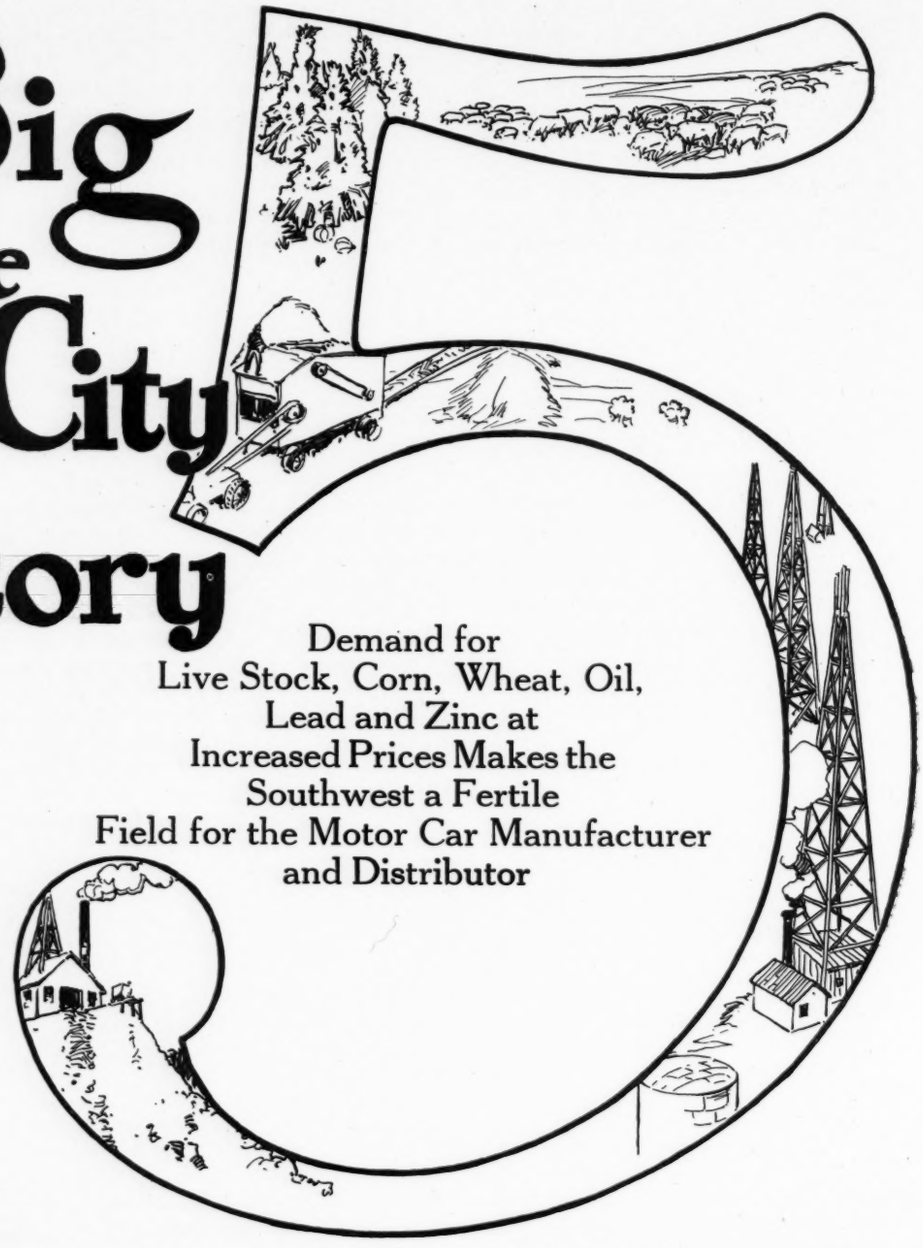
Railroads to Add Cars

According to the traffic bureau statistics, there are in use by the American railroads at the present time, 68,235 motor vehicle freight cars, and there is prospect of 10,000 more being added to this equipment in the very near future. This will give an enormous equipment designed for the special service of the industry, which today has developed to the point where it is one of the chief sources of freight revenue of the railroads. But even with the added number it is doubtful if the supply will keep pace with motor car production.

Railroads seem to be doing all they can to help the movement of motor cars, but they did not anticipate the demand, and, although they have hastened to build more equipment, the difficulty of getting material has held up placing the additional freight cars in service. As a notable example of what the railroads are doing, it might be mentioned that the Santa Fe and other western roads are sending trains of empties back to the motor car centers, instead of holding them at their destination for loads to take back.

A considerable factor in the present dearth of freight cars is the tie-up in the east, according to one of the traffic men here. His concern has sixty-nine carloads tied up in Norfolk, Va., waiting to be loaded on steamers, and doubtless there are many other such instances. There is no place to store the vehicles pending their being put on the ships, and consequently they are letting them lie in the freight cars. This is quite prevalent at all the export points, and is being practiced by many of the makers. Due to this and other causes of congestion in the east, the Lake Shore, for instance, has been holding up shipments for eastern points as far back on its lines as Toledo.

The Big of the Kansas City Territory



Demand for Live Stock, Corn, Wheat, Oil, Lead and Zinc at Increased Prices Makes the Southwest a Fertile Field for the Motor Car Manufacturer and Distributor

By George S. Quisenberry

KANSAS CITY, Mo., Feb. 12—It is not possible to lump Kansas City and its trade territory into a single word this year. At other times, the one thing, "crops," might have sufficed to cover all the resources of this big district, including, as it does, western Missouri, Kansas, northwestern Arkansas, Oklahoma and parts of Texas and Nebraska. But this year its description must be more diversified.

Territory of Varied Resources

The visitor to the annual motor show that closed today in the Case building—the largest, by the way, ever held in Kansas City—became impressed quickly with the numerous factors tending to make up the immense buying capacity of this territory. At one booth would be a Missouri zinc miner, who is selling his ore this year at $110 a ton, whereas a year ago he was getting not to exceed $50; at another would be an Oklahoma oil man who had watched the price of his product jump from 40 cents a barrel to $1.30 within the last 6 months, and at a third would be a Kansas farmer who had paid off the mortgages on his farm out of the wheat yield of a year ago and now counted the surplus from his last crops at so much free money to go into the banks or be spent for motor cars.

But that is not all. There is the Missouri farmer who increased the value of his farm output in 1915 to approximately $219,000,000, the Kansas livestock grower who added $40,000,000 to the value of his livestock last year, and, likewise, those men from the country districts who have been shipping every week $1,000,000 worth of horses and mules into the Kansas City market for reshipment to the warring nations of Europe. Like other sections of the United States, this territory has a greater purchasing capacity than in any other year in its history. As a witness, the cashier of the Kansas City federal reserve bank reports:

"The financial resources of this territory are from 15 to 18 per cent above what they were this time a year ago. Then we thought we were the most prosperous section of the country. Certainly we are today."

A Half Billion Dollar Year

The Kansas City trade territory looks upon this as its $500,000,000 year. The production of farm crops, livestock, zinc and lead, and oil—the chief factors—in the adjacent states reached approximately that sum for the year 1915. Of course, all of it does not represent profit and it is not money that will be expended entirely outside of living and other actual expenses.

It does not include the value of the manufactured and jobbing products of such cities as Kansas City, St. Joseph, Springfield, Topeka, Wichita, Hutchinson, Oklahoma City, McAlester and other places in the southwest that count Kansas City as their gateway and have resources not dependent upon any of these things.

Rich Profits to Producers

The sum does represent, however, the returns to the three large classes of producers in this territory—the farmer, the oil man and the miner. This much money came into their hands as the result of the business of 1915—it is the value of the raw products originating in those states covered by the Kansas City distributing agencies. Some of this money will be used for paying off mortgages, some to buy flour, meat and groceries, and some to pay labor bills, but that amount went into the Kansas City territory last year and is available for one purpose or another.

Itemizing the various components, eight separate items must be listed to make up the wealth of the territory. They reach the sum of $474,188,000 and were compiled from reports of state and federal officials, showing totals for January 1.

Live stock (marketed)	$198,191,500
Corn	194,740,000
Wheat	142,330,000
Hay	43,672,000
Oats	35,408,000
Other crops	75,000,000
Oil and gas	55,000,000
Lead and zinc	28,038,000

Figures for the motor car purchases from the Kansas City distributing and retail agencies in 1915 show a total of $41,000,000 for cars and accessories. These figures carry a prediction that the 1916 sales will approach $50,000,000, of which one-fifth will be for tires and accessories.

The number of cars owned in the Kansas City territory has shown a steady growth under the stimulus of better cars and more vigorous campaigning by the agencies.

Missouri has jumped from 16,387 in 1911 to 76,462 for the calendar year of 1915, according to report of the secretary of state.

The Kansas growth has been practically the same until now it has reached 76,830 registered cars. According to an estimate by state secretary, two-thirds of them are owned on the farms and in towns having a population of less than 2,500.

Oklahoma began registering its cars last June and on February 2 had 25,029 passenger cars and trucks licensed, owned largely in the smaller cities and country districts.

Bumper Crops in Kansas

To explain the resources of this distributing territory it is necessary to go into detailed figures. The field crops of Kansas as a whole for the year 1915 were valued at almost exactly $250,000,000, a loss over the 1914 totals of $28,500,000. Wet weather during the summer months cut the wheat yield to practically half of that of the 1914 bumper crop of 181,000,000 bushels. But the farmer, the man who grew the wheat and the man who purchases motor cars to drive back and forth from town, sold his 95,000,000 bushels in 1915 at higher prices. The year before, pressed with debts hanging over the previous years, he had to sell at threshing time for prices ranging from 60 to 70 cents.

He paid off those debts and when the 1915 harvest came around he decided to hold his crop until late for larger prices. He got them, ranging from 90 cents to $1.10 per bushel, by not selling until November, December and January. Now Kansas is selling wheat in quantities never before recorded in the winter months. And the debts to be paid with that money are few. It will be spent largely for luxuries.

Crop conditions in the three states of Missouri, Kansas and Oklahoma were much similar. Wheat production was less than the year before in each, Missouri and Oklahoma falling about 25 per cent and Kansas about 50 per cent. Corn production was greater, totaling for the three states, $263,000,000, an increase of 56,000,000 bushels over the preceding year. That wiped out a lot of the wheat decreases, which totaled $78,000,000 for the three states.

Dairy Products Increase

Hay, dairy, poultry and horticultural products showed an increase in all the states, so much so that the totals make 1915 the second largest crop year in the Kansas City territory this century. The 1914 crops were the only ones larger.

Kansas, Oklahoma and Missouri at this time have the heaviest bank deposits in their history. Kansas banks have deposits of $224,110,576, an increase of $23,000,000 in a year; Oklahoma banks, with $134,476,292, are about $19,000,000 ahead of 1914, and in Missouri the same ratio is maintained, although exact figures are lacking. As an indication of the same growth, Kansas City is pointing proudly to its bank clearings and deposits. The deposits on December 31, 1915, in Kansas City banks alone, totaled $180,000,000, a gain of $34,000,000 in a year, and the bank clearings for the year reached the total of $3,835,000,000, a gain of $750,000,000 over 1914.

The Kansas farmer, of course, is the heavy buyer of motor cars and the average car sold there is the all-purpose car, averaging from $600 to $900. The car used in that state must be one that the farmer can drive to town and utilize in bringing back supplies and provisions; in other words, one that isn't so costly that it demands care and washing. He has little time to repair and wash his car.

Figures taken from the state assessor's lists, but not including all the machines owned in Kansas, shows Fords to constitute a third of those in the Kansas district. Buick and Overland come second and third. The list by makes, furnished from the assessor's report, is:

Auburn	652
Buick	5,998
Cadillac	855
Chalmers	732
Dodge	551
E-M-F	699
Ford	25,254
Hudson	879
Hupmobile	755
Jackson	512
Maxwell	3,026
Mitchell	707
Oakland	720
Overland	5,515
Regal	523
Reo	2,389
Saxon	378
Studebaker	3,427
Velie	406

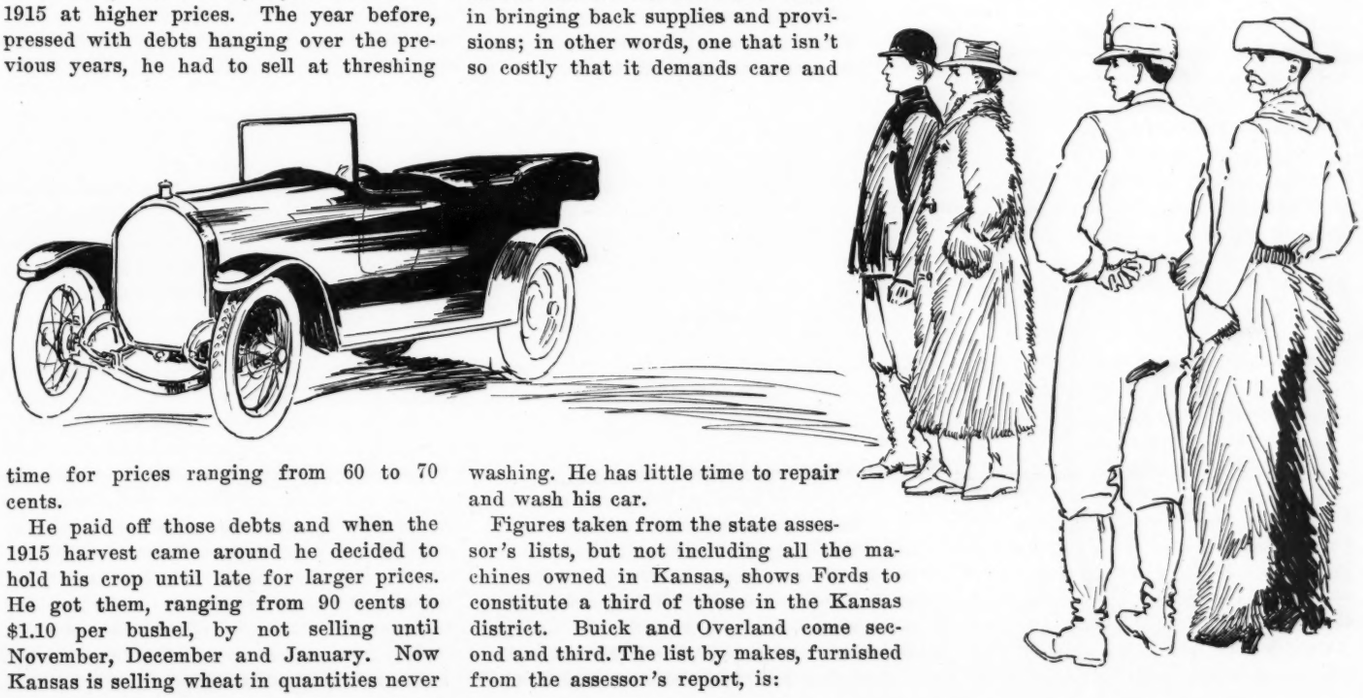
Good progress has been made in the last year in increased distribution of electric cars in the Kansas City territory. Kansas City alone has today between 800 and 850 electric passenger cars. The city of St. Louis has approximately 750, but must not be classed in the Kansas territory. For the past 6 months the sale of electric passenger cars has increased very perceptibly and has been stimulated by the high price of crude oil in the Oklahoma territory and zinc war prices in western Missouri.

Electrics Popular in Oklahoma

In the Oklahoma oil territory electrics are becoming relatively common. Manager Clark, of the Detroit electric in Kansas City, states that there are sixteen recent sales made in Tulsa, Okla., which is the center of the oil section; three in Bartlesville, which is also in the oil district, and three in Muskogee, another oil center.

During the past few months there has been a wider distribution of electrics and as a result of this the business has more than doubled as compared with a year ago. It is now becoming more general to establish some kind of dealer in all towns of 10,000 population or over and to carry demonstrators in them.

The influence of general improved conditions in the Kansas territory is reflected in the greater sale of electrics. Joplin, Mo., of zinc fame, has eight electrics. In



several towns in Kansas the electric is making headway. Topeka, the capital, is not a leading city, but has four. In Hutchinson there are three. Wichita has proven a particularly good second-hand market, one distributor having sold eleven in the past fall.

In Kansas City there are three electric garages, one operated by the Anderson Electric Car Co., a second by Baker-R. and L., and a third by a party not selling cars. Of these, 800 electric cars in Kansas City all except 250 are kept in the private garages of the owners. The introduction of a new type of rotary converter for charging purposes, which is very simple to operate, is advanced as one reason for a wider use of electrics in Kansas City.

Kansas, also, has not yet started actually to build good roads. Any number of counties have enthusiastic plans for highway improvements, but few indeed are those that have borne fruit. This is another factor in the sale of cars in that state.

Higher-priced motor cars are not purchased when they have to be driven through mud and slush. Road sentiment has crystallized largely throughout the past year, more so than during other years, and it is reasonable to believe many roads that are now impassable in winter will be macadamed or improved before another 12 months have passed.

City and Country Equal

The sale of cars in Missouri is divided about equally between the city and the country. The western half of the state—Kansas City territory—contains within it Springfield, Joplin, Carthage, Sedalia, St. Joseph, Webb City, and several other cities in excess of 10,000. St. Joseph is as large as any city in Kansas and, of course, there are none to compare in size with Kansas City.

Consequently, the car bought in Missouri will average higher in cost. The hills of Kansas City are no bar to electrics and one big bakery here recently installed a fleet of twenty-two electric trucks. Joplin has recently opened a public charging station and under the stimulus of the war-time zinc prices the Joplin-Webb City-Carthage buyers no doubt will invest more in electrics and the larger and more costly gasoline passenger cars.

Such oil centers of Oklahoma as Tulsa, Bartlesville and Muskogee are buying more high-priced cars and electrics than ever before. Oil has made many millionaires within the last 6 months and development is going on so rapidly that extensive new wells undoubtedly will be brought in. This has come about as a result of the price increase since August 1. At that time crude oil at the wells was selling for 40 cents a barrel and production dropped to a low minimum. Then it began climbing and in 20 days had jumped 35 cents a barrel. At that time it was estimated that a 15 cent increase meant that $50,000 more per day was being brought into the Oklahoma fields. Late in January the last advance brought the price up to $1.30 a barrel, an increase from the low mark of last July that means at least $300,000 more per day going into the Oklahoma fields than at this time a year ago. That money will go largely into the purchase of motor cars and other comforts.

The zinc and lead mines are not confined entirely to Missouri. A fringe of Kansas counties near Joplin and Webb City has several good producing mines and the mineral belt extends into northern Oklahoma. Production in the Missouri-Kansas-Oklahoma fields went up tremendously last year, totaling $26,000,000, more than double that of the previous year, and estimates based on the present prices and production fix this year's total at $38,000,000.

K. C. Show a Success

Nearly 125,000 Attend and Exhibitors Will Get Space Cost Rebated

Results Show Territory Will Absorb Big Volume of Cars in 1916

KANSAS CITY, Mo., Feb. 12—The motor show closed here tonight with a final attendance that brought the total for the week to practically 125,000, not including the pass admissions to exhibitors, dealers and press representatives. All exhibitors will be rebated for their space and the surplus left in the treasury of the Kansas City Automobile Dealers' Association will be spent in good roads promotion in the territory adjacent to this city.

Both attendance and sales were largely in excess of that of any previous show here and almost without exception the exhibitors spoke of expected sales increases for this year of from 20 to 30 per cent. The medium-priced car, of course, proved to be the heaviest seller, although the agents here for the higher-priced machines spoke of increased sales and prospects not only for the local but for the country trade as well.

The results of the show go to prove that this territory will handle a tremendous volume of cars this year. The Buick allotment, largely contracted already, is 5,000 cars; Overland will handle 6,500 machines in the territory that took 3,900 last year; Reo and Grant, handled by the same company over a large section, have contracted about five thousand, and Oakland expects to increase largely over 1915. Truck exhibitors likewise were extremely optimistic of the show results, saying almost without exception that the actual sales during show week and the prospects obtained exceeded former weeks.

MOTOR RESERVE FOR KANSAS?

Topeka, Kan., Feb. 11—C. I. Martin, adjutant-general of the Kansas National Guard, has asked Governor Capper for permission to establish a motor car reserve corps for the citizen soldiery. This action follows a letter recently received from Motor Print, asking Governor Capper for his approval of the reserve corps movement. It was turned over to the adjutant-general, who immediately gave it his sanction and asked that such a corps be formed.

"I believe the plan should be encouraged," the adjutant-general wrote. "It may be of great advantage to the state and national government in the time of need."

Although Governor Capper has not yet given his sanction, it is understood that the adjutant-general will go ahead with his plans for the reserve corps. It may be worked out in Kansas somewhat differently than other states, but whatever is accomplished will have to be done without expense to the state. In his recommendation, Martin states that the Kansas laws make no provision for the payment or enlisting of the corps and anything done toward it would have to be voluntary by the motor owner. However, he probably will undertake its formation and has suggested that the same plan be adopted in Kansas as has been worked out by the general staff of the army.

K. C. TRACTOR SHOW A SUCCESS

Kansas City, Mo., Feb. 12—The close of the first tractor show here today brought statements from the officers of the Kansas City Tractor Club that paid admissions for the week totalled 20,000, a large majority of whom were farmers who came to Kansas City not from curiosity but from a desire to purchase tractors. Sales were heavy, one firm having contracted more than 100 machines, another seventy-five, and others from twenty-five to fifty.

The attendance was unusual. It was a business crowd and sightseers composed a very small part of it. The show's location in a tent near the Union Station, the cold weather, and the damp ground made it unattractive to the merely curious. Those who went through the gate were there because they had some good reason—farmers and ranchers desirous of investigation, motor car and implement dealers who wished to take on agencies, and tractor owners who came to see the improvements that had been made since they purchased.

Many of the country motor dealers who were in Kansas City on account of the motor show, held in another place, visited the tractor show and some were appointed agents in their respective territories. Tractor manufacturers who also sold motor cars and accessories appointed a large number of the representatives out of the motor dealers. Implement houses that have tractors as a part of their farm machinery did not reach this trade heavily. They seemed content to place their agencies with the implement and hardware men in the various county seats.

Label used in comfort fund campaign

For Tommy Atkins, Military Chauffeur

How Stay-at-Home Patriots Look After Comforts of English Drivers at the Front

By W. F. Bradley

LONDON, Jan. 25—One of the important occupations of English people not at the war is that of looking after the comforts of the men who are doing the fighting for them. Every district has a regiment in which it is particularly interested and every colonel's wife makes a direct appeal to the villagers left at home for necessities and luxuries to be sent to the men operating under her husband at the front.

The men who are responsible for the running of the mechanical transport section of the British army were in danger of being left out of the various schemes for the physical and mental improvement of Tommy in the field, however. Nobody was particularly interested in them; they had no direct connection with any particular portion of the British territory; indeed, until the war cloud burst they did not exist as soldiers, or had but a distant connection with the army as reservists.

When war was declared, the army laid its hands on motor trucks—practically all trucks that were worth taking away—and rather than look for other employment, many men decided they would remain at the wheel in the service of His Majesty. In hundreds of cases men were transformed, within a period of 48 hours, from civilian drivers in London, Yorkshire or Glasgow, to army truck drivers operating in France. They knew nothing about military drill, they had peculiar notions regarding army discipline, and their geography of France was as vague as their knowledge of that country's language was inaccurate.

Prince Heads Comforts Fund

Within a few weeks after the first British troops went abroad "Commercial Motor," of London, decided that it would take truck driver Tommy under its protective wing. A campaign comforts fund was formed with Prince Arthur of Connaught as its official head, the motor industry as its financial supporter, and the "Commercial Motor" staff as its honorary workers.

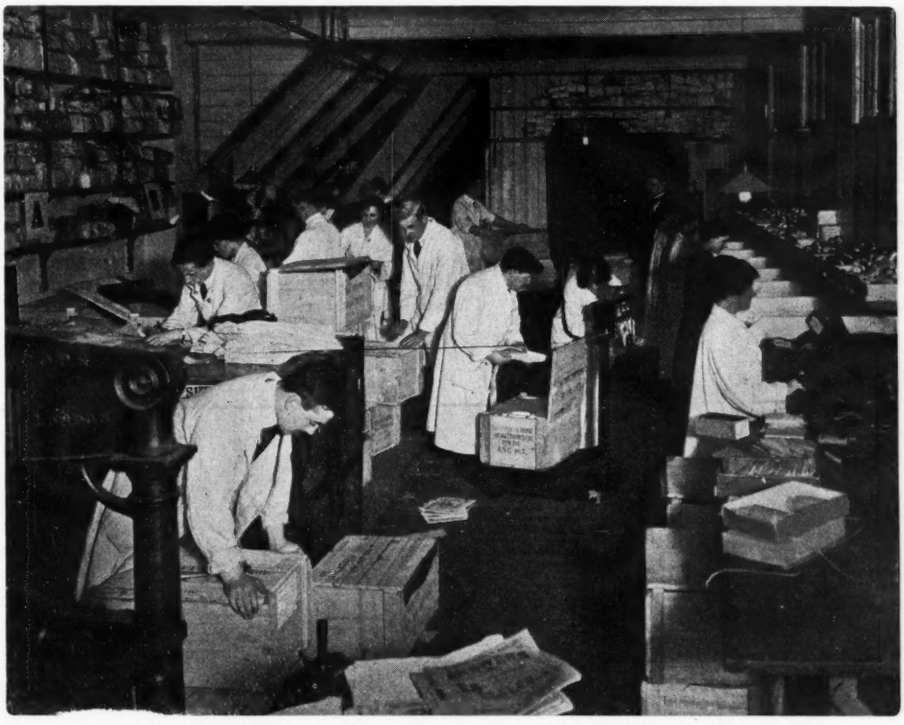
The story of the army drivers' fund, as related by A. W. Windsor, the general manager of "Commercial Motor," is of interest to those who have followed the use of the motor car in warfare. The British army authorities were soon so convinced that this branch of the service was being taken care of in the right way that they gave the fund official recognition, thus preventing a diffusion of effort which could not tend towards efficiency.

When the scheme came into existence, there were but a few hundred motor drivers to provide for. At the present time the number abroad is between 60,000 and 70,000, this being as near the truth as army regulations will allow the writer to approach. The fund is not interested in the mechanical transport men until they get abroad. While in England they can buy the comforts they want, or they can find plenty of patriots to supply them without payment.

But as soon as a unit receives orders to go abroad, the campaign comforts fund develops a motherly interest in it. The English method is to give the men no warning when they are going abroad. At the English military camps, the men go out route marching with full kit every day, but from time to time a battalion goes out and fails to come back—they call them the disappearing battalions. In the same way the attached convoys receive orders to make for some port, it may be to pick up stores, it may be to go to France or Egypt—they never know.

The fund officials have a system of finding out what happens to these men which would make German spies green with envy. Recently there was a hurry-up call for more artillery in Serbia. Within 24 hours of the order coming from London, the batteries were aboard a troop ship; within 6 hours of the campaign comforts fund hearing of their movement, comfort cases for those men were on the train and went out with the same steamer.

The men who operate the mechanical transport service of the British army require different classes of comforts from the troops serving in the trenches or with the artillery. Of the $40,000 contributed and spent on soldier-drivers since the fund came into existence, the largest single amount has been for driving gloves. It was a very difficult matter to find gloves which would stand the rough work of men at the front. Scores of sample sets were secured, soaked in oil, exposed to the weath-

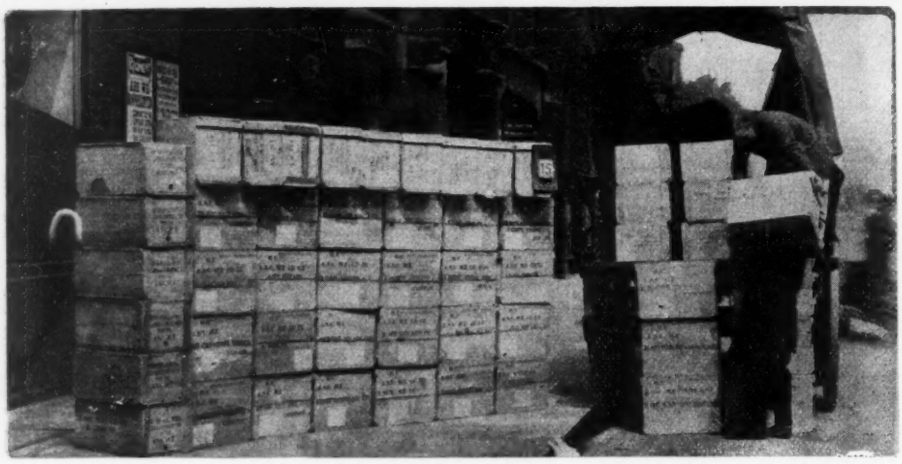


Packing goods for motor truck drivers serving with the British army in Europe

er, and then submitted to a tearing test until one was found good enough to give to the army drivers. Incidentally, it is an American horse-hide glove bought in such quantities that it costs but 40 cents a pair, although any wholesale dealer would be willing to give four times that amount for it. Up to the present time 34,000 pairs of these gloves have been sent out to the drivers. Bachelors' buttons—the kind that are sewn on with a hammer—are bought in quarter million lots. Already 300,000 of these have been sent abroad to the military chauffeurs.

To cut out all abuses, gifts are sent only to the officers in command of units. Official requisition forms are placed in the hands of these officers; they make the requests and see that the goods are fairly distributed among their men. There is no lack of variety in the requests. In one mail came an appeal for an ice-making machine and a quantity of wool helmets—the one was for Africa and the other for northern France; one unit wanted a second-hand harmonica and another asked for a case of soap; in the same mail came an intimation that a brass band was being organized by a repair shop unit well to the rear of the lines and instruments were wanted for it, and the information that an officer had discovered he had been sitting on a keg of tobacco for 10 months.

Although most of the units are constantly on the move, and in some cases entirely disappear or are reformed by reason of casualties, not a single one of the hundreds of cases sent out to the drivers has been completely lost. Such a system has been adopted that every consignment can be traced, and if acknowlegement of its receipt is not at hand within a certain time, a searcher is sent out. The keg of tobacco mentioned above is one of the instances. No acknowledgement had come to hand and on close inquiries being made, it was found that the case of tobacco in question had been delivered to the wood shack in northern France forming the headquarters of the unit, and that one of the officers had appropriated it as a seat, not troubling to inquire if there was anything inside. That tobacco had been mellowing under the officer for 10 months before it was distributed to the men.



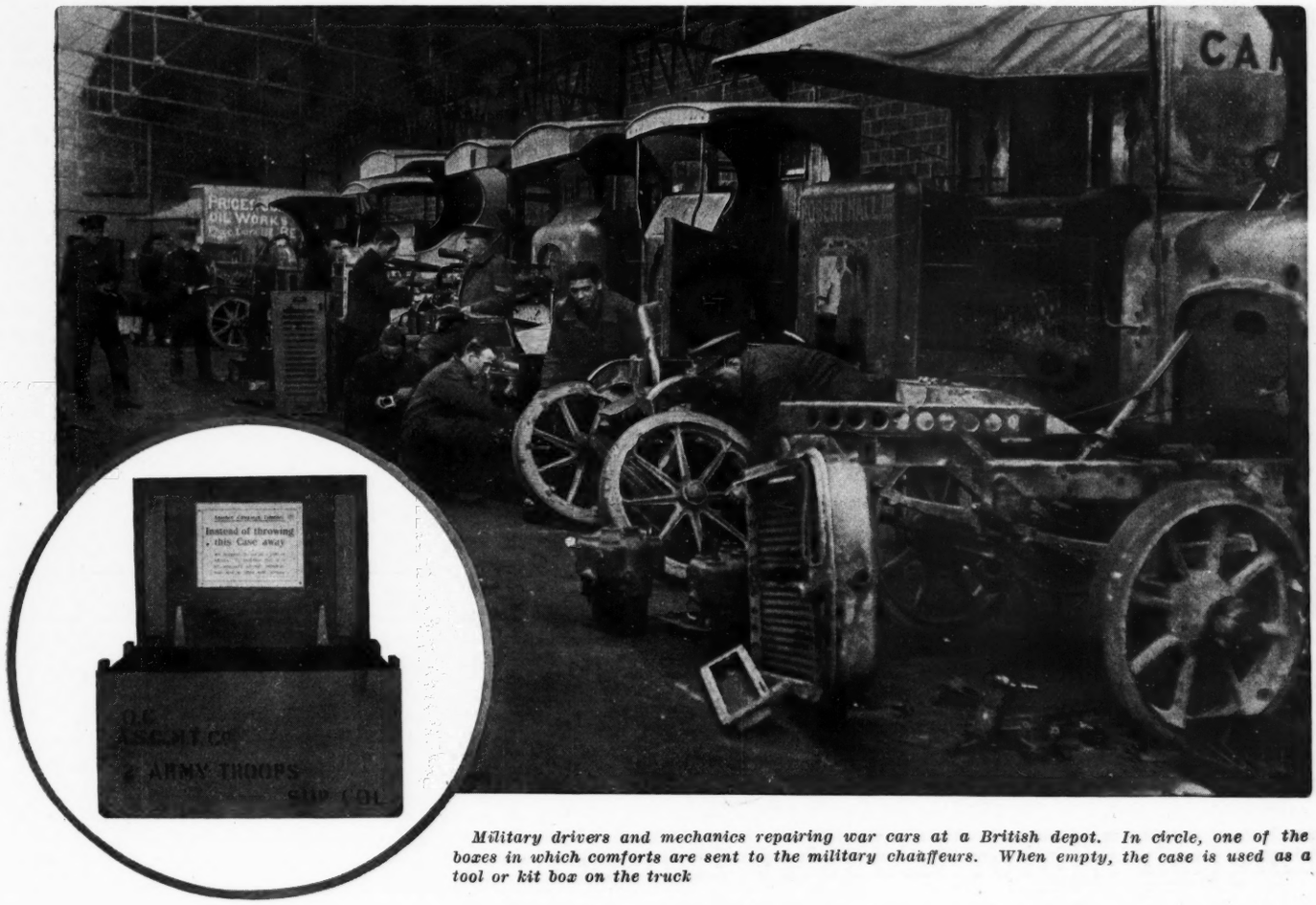
Upper illustration—Soap and socks, balls and bandages, and other gifts for military drivers are kept in bins at the headquarters of the comforts fund. Middle illustration—Gramophones are sent to the motor units serving with the British forces in France. Lower illustration—Loading trucks with cases of comforts to be shipped to the war zone

Cases Useful When Empty

The method of distributing comforts to soldier-drivers gives an interesting insight into a certain branch of military organization. All goods are packed in strong wood boxes modelled on the regulation army biscuit box. A notice inside the lid of the box recommends its use, when empty, for storage either in the repair shops or on the trucks, and many hundreds of these cases have been attached below the overhanging portions of truck bodies working along the front.

All cases are shipped at the expense of the fund to some English port—London, Liverpool, Plymouth, Southampton, Dover—according to their ultimate destination. The only address is the name of the unit and the force to which it is attached, whether French, Mediterranean, African, or other. Thus if cases fall into the hands of the enemy, there is nothing to indicate where the units concerned are stationed. The forwarding officer at the home port sends the cases through to the forwarding officer at the overseas port, who in turn forwards them by road or rail to their final destination.

In the comforts fund offices, there is a card system which is interesting as a system, but which would be invaluable to a German if he could get within sight of it and become possessed of the key to its interpretation. It gives the official designation, but not the location, of every motor unit attached to the British army abroad. Every section of the army, whether it be infantry, cavalry, artillery, machine guns, anti-aircraft, engineers, or any army service corps, has its own motor car service. If the motor unit has gone out, it is evident that the body which it serves is also on the field.



Military drivers and mechanics repairing war cars at a British depot. In circle, one of the boxes in which comforts are sent to the military chauffeurs. When empty, the case is used as a tool or kit box on the truck

Thus the card system shows supply columns, hundreds of them, each one of them consisting of a big convoy of trucks engaged in carrying provisions and fodder to men and horses in the field. Another section covers ammunition parks and columns, these being the big depots in which the ammunition is stored, and the hundreds of convoys entrusted with the task of carrying that ammunition to the men in the trenches. Another section is headed general headquarters ammunition parks, these being reserve supplies of ammunition with reserve trucks to hurry it up to any point where it is urgently needed. Heavy artillery ammunition columns comprise the trucks which carry up the big shells, three or four of which often constitute a sufficient load for the average truck. Siege battery units comprise the heavy tractors with gasoline motors of 80 horsepower, employed in hauling 15-inch guns to selected positions, and also in keeping those guns supplied with the necessary quantity of shells. Auxiliary motor traction units include buses for the quick transportation of men from one point of the line to another, or from the trenches to the rear, and also for the transshipment of every kind of material that can be and is made use of in modern warfare as waged in red Europe.

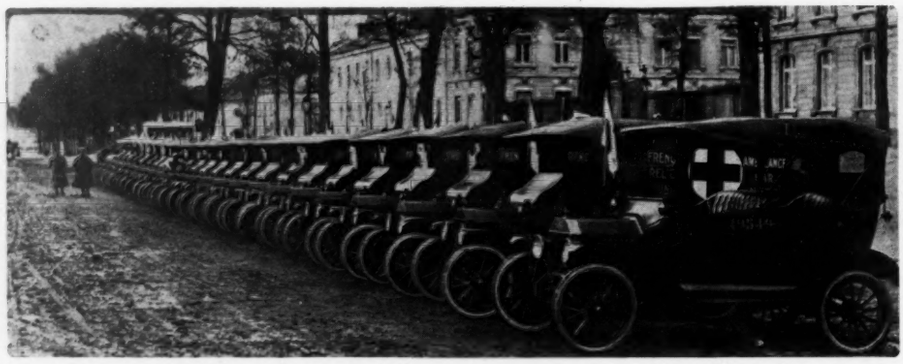
Motor ambulances form a big section of the file system, for in this work the horse has been abandoned entirely. When a man falls, he is carried by the stretcher bearers to the dressing stations only a few hundred yards behind the firing line, and there he is picked up by the motor ambulance and hurried to the clearing hospitals, or direct to the ambulance trains, as the case may be. From the moment the man falls to the moment he is admitted to the convalescent homes in England, he has no need of horse transport.

Military motorcycles and cars parked outside the English army headquarters at Salonica

Studying War From Afar

Transport units attached to the anti-aircraft brigades are another all-motor group. Under the heading "Air Line" is included the units made use of by field telegraphists. An interesting unit is headed "Mobile Tire Presses"—trucks carrying hydraulic presses for fitting band tires in the field. Other headings are "Bridging Trains," "Road Repairing Columns"—most of which are steam wagons; "Armored Motor Batteries," and the big stationary workshops, most of them miles to the rear, and some of them employing several hundred men.

Going over this card system gives a comprehension of the multitudinous applications of motor vehicles to warfare which could not be obtained by a visit to the field. Here



Convoy of Ford ambulances, given to the French army by the French relief fund, parked at Versailles

they are visualized, row upon row of motor columns, each card indicating a convoy or a workshop, and each convoy suggesting an important body of troops dependent on it.

The motor car industry as a whole has made itself responsible for the financial success of the comforts fund, and has subscribed with such liberality that 266,000 gifts had been sent to drivers and mechanics abroad by the end of November, 1915. Many of the leading English manufacturers make regular subscriptions of $50 a month, others subscribe $25 monthly, and others have donated lump sums. Appreciation has not been confined to England. Messrs. Gaston, Williams and Wigmore are among the $50 a month subscribers and the Peerless company, of Cleveland, O., has donated $2,000.

The comforts fund for the motor traction men serving with the British army abroad is certainly the best managed of the many organizations for taking care of Tommy in the field. "Commercial Motor" assumes all overhead charges and provides most of the clerical labor free. Tommy gets advantage of the most economical purchasing, the only deductions from the subscribed sums being for a small amount of manual labor and for the cases in which goods are packed.

English Motor Industry Prosperous

Balance Sheets Show Dividends in War Time

LONDON, Jan. 24—After 1 year's operation under war conditions, the British motor industry finds itself in a remarkably strong financial condition. It is only possible to judge with any degree of certainty the strength of those companies registered under the limited liability law and in consequence having published a balance sheet. In practically every case the net profit earned during the financial year, ending on or about December, 1915, is greater than the earnings for the year 1914. In other words, the war has not had an adverse influence on the British motor industry.

Sunbeam Pays Big Dividend

The most notable balance sheet is that of the Sunbeam company, which shows a profit of more than $1,200,000 and has paid a dividend of 25 per cent, free of income tax. At the same time, the company has placed $600,000 to reserve, bringing this account up to $1,100,000, and has carried forward a sum of $378,335. The paid-up capital of the company is $1,350,000, so that the profits of the year bear a very important relation to the capital employed. Further, the amount placed to reserve fund is larger than the net profit in any year in the history of the company, while the amount carried forward exceeds by $25,000 the profits for the year immediately preceding the war.

The B. S. A. balance sheet, which also includes the Daimler company, is another conspicuous example of the prosperity of the British motor industry. The company shows a profit of more than $2,000,000 and pays 20 per cent, compared to 15 per cent for the previous year. The increased strength of the company is not revealed, however, by the dividend paid to stockholders, for the earnings have increased from $950,000 in the 1914 financial year to more than $2,040,000 during the last year. In addition to this the company added nearly $2,500,000 to the general reserve fund.

Another case which calls for attention is that of the Darracq company, which is registered under English laws, but has its factory in France. After paying no dividend for 4 years, the Darracq stock has yielded 7½ per cent, which is very much less than the directors might have paid out had it not been for the uncertainty regarding the future and the desire to strengthen the financial position. Thus, the company has placed $250,000 to general reserve, bringing this account up to its original figure of $750,000; it has placed $269,840 to special reserve and has carried forward $85,720.

The Dunlop Rubber Co. heads the list of motor car and kindred firms with a net profit of $2,058,195, being a net increase on the previous year's trading of $185,000. Here, again, the dividend is not by any means as high as would have been in ordinary times, the directors seeing the necessity of making substantial provision against possible lean years which may follow the war.

In the few cases where the dividend this year is less than for the previous 12 months, in nearly every case it can be attributed to special circumstances, as for instance foreign investments, for which huge depreciations have to be allowed, or losses through branch houses, or goods being held by the enemy. These, however, bear a very small proportion to the whole. It should be noted, too, that many of these balance sheets include the first 2 months of the war, when owing to failure to realize the extent and possible duration of the conflict, some of the factories were idle or running below capacity.

Oppose Tax on Excess Profits

Financially, the position of the English and the French motor manufacturing concerns is unusually strong. But this does not imply complete satisfaction on the part of those holding interests in them. The government plan to tax a large proportion of the excess profits is not to the taste of interested parties. One outcome of this has been that the Darracq company has formed a French company to acquire the French factory, the whole of the stock, with the exception of the small amount necessary to comply with the law, being held by the British company. The main advantage of this is that the French taxation of war profits will be lower than that of England.

The greatest strength of the British motor industry is not revealed in the summaries of its financial situation. While reserve funds are being built up and adequate dividends are being paid on common stock, immense sums are being expended on improvements and additions to the factories. The new plant put down since the war costs more than in normal times, but in most cases its cost will be wiped off by the war contracts already in hand. The result is that the end of the war ought to find the motor car industry sounder financially than at any previous period, and at the same time in possession of more modern and more completely-equipped establishments.

Despite this, British manufacturers are not particularly joyful. There is a haunting fear that the end of the war will find America in possession of the home and colonial markets; the good will and trade names, which have taken years to build up, are gradually diminishing until they may become insignificant factors. In this connection the war is tending to place the smallest firm on a level with the best. All, big and little, have to face the fact that American makers, who would normally never have found a footing on the market, have now secured a strong position and will have to be competed against. In consequence, the feeling towards the American industry is far from cordial.

Engineers Discuss Future Design Tendencies

Paper Presented Before Detroit Section S. A. E. Criticizes Present Practice as Exhibited at Shows

DETROIT, Mich., Feb. 16—Special telegram—Detroit motor car engineers discussed the design tendencies of the year tonight at the professional session of the Detroit section of the Society of Automobile Engineers. The feature of the evening was a paper entitled, "1916 Trend in Automobile Design—A Critical Analysis of the Automobile Shows," by A. Ludlow Clayden and L. V. Spencer, both of whom are in the editorial department of the Class Journal. Some of the points which aroused discussion were the possibility of using lower grades of fuel and easier maintenance. The paper is reproduced in part below:

It was only when the twelve was evolved that the cylinder question could reach its limit. There is nothing to be gained in theory, in going beyond this number, unless we turn to rotating cylinder engines of the Gnome type, so now at last we have all possible sorts of cylinder arrangement before us, from four to twelve.

While there is nothing more satisfactory than the small-cylinder four in a little car, it is absolutely essential that it be kept in good trim, or the power falls off woefully, and in the same ratio an eight or twelve with minute cylinders will need to have its valves maintained in proper adjustment, to have every detail kept in proper condition.

Much has been written about accessibility and much more been talked during the past year, but however necessary it may be to maintain, from a sales point of view, that eights and twelves are easy to keep in good tune, an engineer cannot blink the fact that an L-head engine of V-formation is horribly inaccessible as compared with a vertical-cylinder engine of the same standard of engineering. The main factor in keeping the little cylinder at good efficiency is maintenance of proper tappet-adjustment. The average owner of an automobile, whether in this country or any other, is not capable of adjusting the ordinary kind of tappet with a set screw and lock nut. The smaller these parts and the smaller the valves, the more difficult does the adjusting process become. On a vertical engine where the valve stems are quite clear, the average man cannot tackle them, and on a V-engine his case is infinitely worse. Thus there is reason to believe that the success of the small eight and of the small twelve is largely bound up with the possibility of improving their ease of adjustment.

Troubles of Thermo-Syphon Circulation

Turning to the cooling system of the engine, we see syphonic circulation—or, more correctly, convection cooling—growing in favor, but study of the cars at the shows discloses the fact that the pump has often been discarded without proper appreciation of the conditions under which a convection system of cooling works. In a system of this sort we have always the hot water at the top, and the cold at the bottom, and if the cylinders are situated at a level with the middle of the radiator they will have approximately the same temperature as the middle of the radiator; in other words, the part of the radiator below the level of the cylinder jackets is useful only as a water tank and has little value as a radiator. With convection cooling a high radiator and a low-placed engine are essentials for success unless a great deal more water is carried than is really necessary. Another much-neglected point is the necessity for providing a good head of water at the top of the radiator. As soon as enough water has evaporated to uncover the outlet pipe from the cylinders at the point where it enters the radiator, circulation theoretically ceases. Practically, it does not cease for some time longer, because the water around the valves boils vigorously and the steam thus formed throws the water into the radiator by a splashing action like a kettle boiling over through the spout. Modern ideas of beauty make it difficult to provide a water container at the top of the radiator that is at least 4 or 5 inches deep, and 4 or 5 inches of water are esesntial if a convection system is to be really satisfactory.

It seems that V-engines produced during 1915 nearly all run too cold, and much is heard regarding the liability of radiator freezing. The V-engine is of a shape and lies in a position that make it ideal for thermo-syphon cooling, and it is rather remarkable that more manufacturers have not taken advantage of this fact.

That the thermostat is a magnificent idea for controlling the engine temperature admits of no argument, but, while assisting the engine, it does not help the radiator in extreme cold, so there seems an opportunity for evolving something better than the makeshift wrappings that are the rule for radiator protection. Why should it not be possible to divide a radiator into three vertical compartments so that one only was filled with water in cold weather, two in moderate climates, and all three in great heat?

Aluminum and High Temperature

A review of this kind would be incomplete without some mention of the aluminum engine, but so much has been written concerning it that there is no need for lengthy recapitulation. Its future seems to be entirely bound up with the price of aluminum. Let aluminum come down to under 20 cents a pound, and its cost would be little greater than that of cast iron, when the greater ease of machining is considered.

Aluminum may possibly develop some defects after long use as a cylinder material. We may find that it deteriorates with prolonged heating, but experiments have been made for long enough now to make this doubt a very small matter. Cheap aluminum is all we ask to enable us to save weight and increase efficiency without increasing liability to trouble.

New Transmissions Important

While interest centers mainly upon the engine, it must not be forgotten that there are other parts of the chassis equally worthy of consideration. That the present form of gearbox and clutch will change but little in the next few years is almost certain; it is as certain as anything can be in so rapidly expanding a branch of engineering; but electric transmission is not to be dismissed with a scornful smile.

Today the gas-electric system is in the same state of infancy that the internal-combustion engine was in 1900. There are a few enthusiasts who believe in it, and they may be just as correct in their belief as was the similar small band who believed in the motor car 16 years ago. In 1912 there were many good engineers who thought we had developed the automobile nearly to the limit, and how wrong they were time has shown. The electric transmission enables us to get rid of the need for providing the amount of excess power necessary to give the high-gear performance now considered necessary.

There are other systems of a purely mechanical sort, such as hydraulic transmissions that give the same effect as an electric system, and these have never been developed into a commercial form. They are things about which we know almost nothing. In the past 4 years we have altered the engine enormously, we know that sliding gearing is no more than a makeshift method of obtaining the desired end, and it is hardly to be believed that we shall be content with that makeshift forever. Rather it is probable that the electric systems we see appearing now are the pioneers in a fresh development of automobile engineering, the effects of which it is utterly impossible to forecast.

However, to leave the visionary and return to the very practical, there are two things in which the average car of 1916 is lacking, and two important things—first, the brakes, and, second, the steering. While engineers of all countries have been devoting their time and study to making the automobile go forward, few of them have given much attention to the equally important matter of keeping it under proper control. The car of 1916 is much faster than the car of 1904, yet it is practically no easier to steer or stop.

In designing brakes, the mathematics of the question ought to be considered, and then should be followed by proper tests of brake-surface materials, of details of shoe design, and so on. A brake ought to act smoothly and quietly, and without more than 20 pounds of pressure on the pedal. It ought to remain in perfect condition for at least 10,000 miles of driving, and when adjustment is needed it ought to be made by turning a single thumb-nut. It is possible to make brakes like this, but it is not easy, because so very little is known about the fundamentals of the subject. Furthermore, it is fundamentally wrong to put all braking restraint on the rear wheels.

One possibility almost untouched is the two-stroke engine. The two-stroke seems a rational development, and yet it does not come. To many of us it is an everlasting puzzle to give the reason. Those idle strokes in a four-stroke engine are poor engineering. It is poor science from the heat-engine theoretical viewpoint. So, too, is the unscavenged exhaust. The idea of leaving a third of the burnt gas in the cylinder to contaminate the fresh charge is bad from the ideal viewpoint.

Future of Heavy-Oil Engines

It is easy to argue about reasons for the high price of gasoline, but whether it be due to a real shortage of supply or caused by financial manipulation of the market, the fact remains that we could run our cars much more cheaply if they would burn heavy grade kerosene. We have developed the really marvelous automatic carbureters of the day by lavish expenditure, and not a thousandth part of the money has been given to trying to find out how to use heavy oil in small engines.

The greatest point in which the present-day automobile fails in its purpose is that of maintenance cost. It is cheap enough to buy, but it is woefully costly to maintain. The novelty idea is almost dead as a sales argument. Cylindricity is ceasing to excite the buyer and some new strong point is needed. Of the choice that offers, low maintenance cost seems to be the greatest, and in working toward this goal engineers will find they have their hands full for a lifetime.

The Ideal Car

The ideal car should have two pedals and a steering wheel. When power is wanted for starting, for speed, or for hill-climbing, press the power pedal; when it is desired to stop, press the retarding pedal.

At all speeds there should be *no* vibration and *no* sound.

Over all roads the car should roll without shock at any speed.

Its operation and maintenance should require no mechanical knowledge.

It should cost little to buy, and less to run.

If that is truly the ideal, are we not indeed a very long way from satisfying it utterly?

METROPOLITAN SECTION TO MEET

New York, Feb. 15—The Metropolitan Section of the S. A. E. is to hear a paper on "Late Developments in Engine and Chassis Testing" at its meeting February 24. This is by Peter P. Dean, former engineer Diehl Mfg. Co., and will be illustrated by lantern slides.

HOOSIERS TO DISCUSS SERVICE

Indianapolis, Ind., Feb. 15—How the engineers of the motor car factories should go about anticipating the complaints that users of their cars may have is the burden of a paper to be presented to the Indiana section of the Society of Automobile Engineers, February 25, by F. A. Cornell, of the Perfection Spring Service Co. This is a subject particularly worthy of study by motor car designers and the presentation of a method of intelligently studying complaints of users so that the difficulties which cause them may be overcome in later models should be very valuable.

PENNA. SECTION TO ORGANIZE

Philadelphia, Pa., Feb. 15—Formal organization of the new Pennsylvania section of the Society of Automobile Engineers is scheduled as the chief object of a meeting at the Engineers' Club of Philadelphia, tomorrow night. A paper by A. M. Dean, on "An American V-Type Motor Development, will form the basis for the professional discussion.

Starving Your Storage Batteries

Why Some Batteries Do Not Hold the Charge

THE most frequent complaint heard about storage batteries is, "My battery will not hold the charge." Except in rare instances, this condition is directly due to continued undercharging, arising from lack of knowledge of the character of the storage battery on the part of owners and dealers.

The Willard Storage Battery Co. states that in practically all such cases there is no fault whatever in the battery itself, but it is literally starved. This is best understood when you know that a storage battery is not a mechanical but an electrochemical apparatus, which in certain respects can be fairly compared with man.

In order that man may do his work well, it is necessary that he get a certain amount of sleep and food. If he is deprived of either, his working powers diminish, and soon he is unable to perform his regular duties. Carried on to its ultimate conclusion, this condition, of course, results in death.

Many Causes of Undercharging

In the case of a storage battery, starving, or insufficient charging, may result from a variety of causes. The Willard company mentions the following:

1—It is possible for the generator to be out of order and fail to deliver current or a break or ground in the circuit may prevent the generated current from reaching the battery.

2—In some cases batteries are many days in transit without charging, and when received with new cars, are not re-charged by the dealer.

3—They may also remain on the showroom floor and be used for frequent demonstration of the starter, without running the motor long enough to give the battery an appreciable amount of current.

4—In some instances batteries that have stood in cars from 1 to 3 months are delivered to the purchaser without attention or re-charging.

5—The service demanded from the starting and lighting system may be abnormal. For example, a physician may drive short distances and make many stops, in which case the demand on the battery for starting is heavy, while the generator is not run long enough or fast enough to replace more than a small part of the current consumed. The same condition may result from using the car largely at night, when the demand for lighting is heavy, and the mileage and speed are not sufficient to replace the current used.

6—In some cases there is a constant discharge from the battery when the car is not used and at the end of a week or ten days the battery is nearly exhausted. In circumstances such as these the current furnished by the generator under normal driving conditions is not sufficient to supply everyday needs and at the same time build the battery up to its maximum state of charge.

7—Then again, nothing more serious may be the matter than persistent neglect in failing to refill the battery with distilled water.

Herewith is presented a general discussion emphasizing the need of watching the storage battery and appears as an introduction to a series of special articles on battery care which will be a feature of the Repairshop department of Motor Age. Part I will appear next week. The material in the present introductory installment is based on a booklet issued by the Willard Storage Battery Co., entitled "Starving the Battery."

When the motorist finds his battery suffering from the effects of any one or a combination of these causes, he oftens takes the battery out of the car and puts it in the hands of an incompetent garage man or electrician for re-charging. The battery is charged over night, or for 24 hours at most, and then put back in the car. Unless neglect has broken down the insulation, causing one or more short circuits, it seems to work all right, but within a few days is again out of commission. The lights are dim, the starter will not turn over the engine, and the owner is certain that he has a defective battery. Then he writes the manufacturer of his car or of his battery, demanding a new battery at once.

What to Do for a Starved Battery

We have compared the starving battery with the starving man, and just as treatment by a good doctor, if given in time, will put the man again on his feet, so with the storage battery.

The real battery expert is the doctor upon whom to call. Such a doctor will put the starved battery on charge at a very low rate that will not cause it to heat above 100 degrees Fahrenheit at any time, and continue charging, testing the gravity of the electrolyte at frequent intervals by means of a hydrometer syringe. If after 2 or 3 days continued charging he finds that the gravity is still rising, he keeps on charging until he fails to get any higher gravity-reading in any cell. In some cases a battery may be rejuvenated in a few days, in others it may take from 10 days to 3 weeks.

A thing to remember, however, is this: that just as starvation has inevitably affected the constitution of the man, it has reduced in certain degree the battery's length of life.

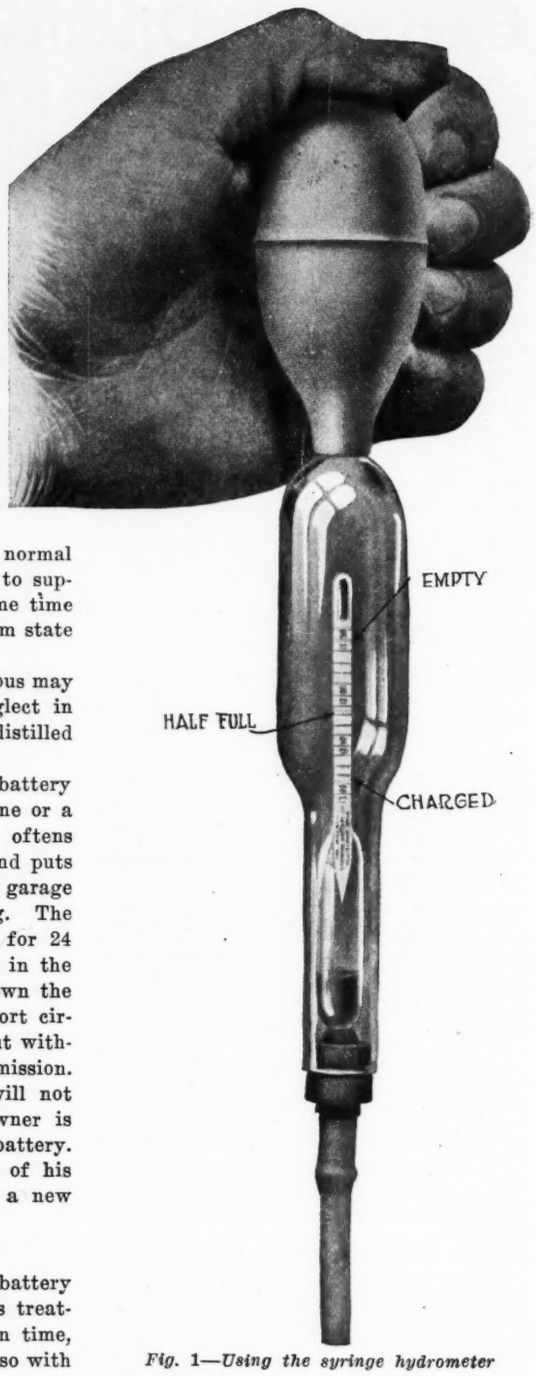


Fig. 1—Using the syringe hydrometer

If the motorist will keep in mind the fact that a storage battery is electrochemical and not mechanical; that it responds to proper treatment but degenerates from neglect, he will take a long step toward freedom from battery troubles. The following of a few simple rules, and the giving of a little regular attention are all that are needed. These constitute that "ounce of prevention" which makes the cure unnecessary.

Prevention Better Than Cure

The wise motor car owner will buy an ampere meter and at stated intervals test his charging circuit to see how much current is going into the battery. He will

also get a hydrometer syringe and learn how to use it.

He will inspect and fill the cells with distilled water, if needed, on the first and fifteenth of each month.

Before filling he will make tests of the electrolyte in all cells, and if he finds any cells reading below 1.250 he will see that the battery gets enough extra charging to bring the gravity up to a maximum of 1.275 to 1.300 in all cells. If he is unable to run the car far enough or fast enough to do this, it will be necessary to remove the battery from the car, and put it in the hands of a battery "doctor" for the necessary attention.

Care should be taken that the battery doctor is a trained man, for if he is not, he may but half-charge the battery and then, because the gravities do not come up to normal, dope the low cells with higher acid solution to make them give the correct reading. Such treatment will further aggravate the condition from which the battery suffers.

The average motorist considers a lighting and starting system as a unit, and as has been noted, classes the storage battery with the mechanical apparatus of the system, such as the starting motor, generator, etc. But since the battery is not mechanical but an electro-chemical apparatus, the active parts gradually wear down and the battery's life must be shorter than that of the mechanical parts of the system.

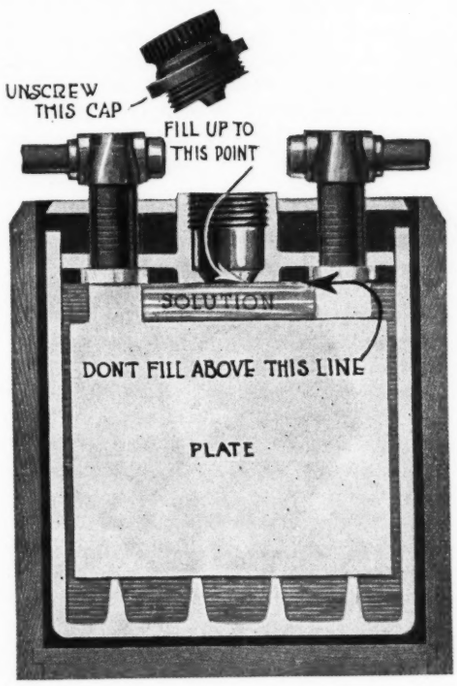


Fig. 2—Do not fill batteries too full, but be sure to keep the plates covered

Think of Battery as Tires

In fact, the storage battery may well be compared with the rubber tire, and if the motorist will think of it in this light he will better understand that even with the best care the battery will wear out, and that when it is neglected its life is, of course, greatly shortened.

The motorist knows that his tires are subject to punctures, cuts and stone bruises. He knows that they will last but a limited time, but he has learned by experience to expect these things and is agreeably surprised if his tire troubles are few.

Just as tires must be kept filled with air, batteries must be kept filled with water and electric current. If a tire is run with 60 pounds air pressure when it should have 80 pounds, it will some day let go and the tire man will say it is rim cut and ruined long before its time because of the owner's negligence.

If a battery is used month after month without being kept properly filled, or even more than three-quarters charged, while it may give no indication of neglect, some day it just quits. The battery man says the insulation has broken down, one or more cells are shorted and the battery is perhaps ruined, all from lack of care by the user.

Rough riding causes cuts and stone bruises which shorten the life of the tire. It also causes broken jars in the battery. Trouble of this kind will increase unless the battery is firmly clamped down. Wedging it in the box will not do. A broken jar is equivalent to a puncture or blow out.

A tire begins to wear out immediately after it is made. The rubber becomes brittle and loses its life, whether it is used or not, so much so that old stock is considered seconds.

A battery also begins to wear out as soon as made, whether it is used or not. Deterioration in an unsued battery is slight, however, for two or three months if the battery is kept properly filled and charged.

A second-hand battery is no more salable than a second-hand tire, though it may be good for long service after being repaired. The motorist should not expect the dealer or manufacturer to exchange a new battery for an old one, even if he will pay the difference.

Just as with tires, batteries are guaranteed against defective material or workmanship, but not to give service if neglected or abused. It is fair to say that not one broken jar or short circuit out of 5,000 is the result of defect, and the car owner should pay for battery repairs as cheerfully as for tire repairs. There is no reason why the dealer or manufacturer should funish another battery for use while repairs are being made, any more than a tire should be furnished under the same circumstances.

Battery Charging Using Lamps

An arrangement by which batteries may be charged is shown in Fig. 3. The batteries are connected in series, as shown, and a voltmeter inserted across the line or in multiple. Six 110-volt carbon filament, incandescent lamps are arranged in parallel. One terminal of the bank goes to the batteries and the other to a safety bank as shown in Fig. 3. The usual charging rates is 3 amperes. For this reason the six carbon lamps are placed in the circuit in parallel.

Each lamp ordinarily consumes .5 ampere in a 110-volt direct-current circuit. The extra bank, is a safeguard in case the current reading on the ammeter is not correct. It will be noticed that the ammeter is in series with the line. This holds true always. All ammeters should be placed in series with the line and all voltmeters across the line.

Since each carbon lamp consumes .5 ampere, the six lamps will take 3 amperes. If the switch leading from the lighting circuit is closed current will flow through the ammeter, through the bank, then to the voltmeter, and finally to the batteries. The ammeter reading now should be 3 amperes.

In the event that the ammeter is reading more than 3 amperes the extra bank may be thrown into the circuit by closing the switch. When the voltmeter reads 2.5 volts the resistance of the line should be decreased to about 1.5 amperes. This is done by removing 3 lamps from the bank. When the voltmeter gain reads 2.5 charging is complete. Batteries should be charged every week, whether they are in use or not. When, as is the case with the starting and lighting batteries, they are on charge whenever the car is running, it only is necessary to see that they are filled properly and the gravity of the cells at the proper point.

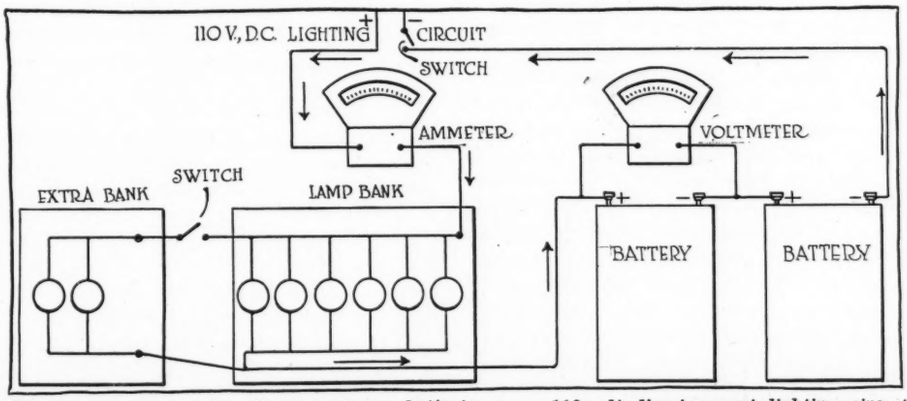


Fig. 3—Arrangement for charging storage batteries on a 110-volt direct-current lighting circuit with a lamp resistance

Unique Exhibition of Cars at San Diego

All Vehicles to Demonstrate Practicability and Utility—Several Special Events

SAN DIEGO, Cal., Feb. 12—Motor transportation will come into its own at the Panama-California International Exposition. There will be no show—that is, as shows have been known in the past; there will be no exhibits, as such; there will be no medals or awards, but the motor car will be one of the biggest headliners ever presented at any exposition.

Motor vehicles, both passenger and commercial, will provide a series of spectacular special events continuing from the opening day to the last day of 1916. Not only will the general buying public find entertainment and instruction in this innovation, but it will be held under the eyes of the various branches of the United States government service. Uncle Sam will have men on the ground during the year to collect data on the efficiency of motors to be used in the aviation service, on cars suitable for the work of the artillery, of machines adapted to scout duty, and for the endless tasks that fall to the caterpillar and tractors as shown in the world's greatest war.

No Still Exhibits

The motor transportation area practically is in the center of the exposition grounds. Surrounding the demonstration field of 10 acres are the arcades which will house the machines. A natural ravine stands within the enclosure in which climbing and equilibrium tests will be conducted in a spectacular manner. Tugs of war, head-on collisions, slow races, tire-changing contests, gasoline tests, and every conceivable means of demonstrating the superior qualities of a car will be given.

Among other events will be special periods given to the demonstration of cars within certain price limits. During such a period all cars selling for less than $750 will be entered; another demonstration will be offered by cars from $600 to $1,200, and to a group including the highest-priced cars made. There will be roadster days, touring car days, truck days and each will be designated far enough ahead so that the dealer or prospective purchaser can be on hand to witness a demonstration in which he is especially interested.

Specal days for certain cars will not be overlooked and at such times, parades and special programs will be offered, giving full sway to one make of car. Blythe H. Henderson, chief of transportation at the San Francisco exposition, will be in charge of this new idea in motor display, and W. E. Benton, who had charge of the motor exhibits installation at San Francisco, will be Henderson's assistant chief.

The motorist who visits the Panama-California International Exposition during the present year will have good reason to believe that this exposition was built for their special entertainment. Instead of barring the motor car from the exposition grounds, they will be admitted at all times and at the nominal charge of 25 cents. This charge also includes the right to park a machine 24 hours on the motor car field. Every traveler who comes to the exposition by motor, and who drives more than 500 miles will receive special recognition and will be given a special exposition button to mark his achievment.

Henry B. Joy, president of the Packard Motor Car Co., and president of the Lincoln Highway Association, was a visitor at the exposition a few weeks ago, and offered his congratulations to the management for the practical recognition it was giving to the car owner and to the cause of American good roads. Joy pledged his support to an aeroplane race around the world as a practical test of high-power motors. Joy predicts a record motor travel to the Pacific coast during the present year.

C. A. C. ELECTS NEW OFFICERS

Chicago, Feb. 15—The Chicago Automobile Club, nationally prominent through the promotion of the Elgin road races and Chicago speedway events and its identification with the interclub reliability tours, will be governed by the following officers, elected at the annual meeting last week:

President, W. O. Duntley; first vice-president, A. N. Eastman; second vice-president, John T. Connery; secretary, William B. Selig, and treasurer, George F. Ballou.

All the committee chairmen have been named, with the exception of the head of the contest board, probably the most important committee in the organization. It is thought that George Ballou will be reappointed chairman, provided his duties as treasurer do not make it impossible for him to accept another term.

OLD-TIMERS AT K. C.

Kansas City, Mo., Feb. 12—Motorists who drove the first cars in Kansas City were guests at a complimentary dinner held at the Hotel Muehlbach last night. The reunion was planned for the first eight of the pioneers, but only three were able to attend. They were Dr. S. C. James, owner of the pioneer car; Dr. C. S. Merriman and Bert Walpole. Around the table, on which was placed a miniature car, they reminisced and discussed probabilities.

Early in 1901, they told, four-sevenths of all the motor cars owned in Kansas City went on a tour to Leave worth, Kan., and the four attracted more attention than a Barnum circus would have done. Dr. Merriam had another story. Shortly after he purchased his first car he drove to Plattsburg, Mo. The distance was less than 70 miles, but he, with a mechanic accompanying, took 2 days for the trip.

The dinner was arranged by Clifford Hogan, of the Kansas City Automobile School. He has obtained records from the factories showing the first eight owners here were Dr. Merriam, Dr. James, Dr. A. H. Cordier, Mr. Walpole, D. F. Piazzek, Dr. A. C. Matthews, Ferd Heim and Louis Curtiss. Mr. Curtiss owned the first gasoline car—a one-lung Winton—and Mr. Piazzek the second. The other cars were steam Locomobiles.

WINTON HAS 12,960 COMBINATIONS

Cleveland, O., Feb. 11—Winton individuality runs into big figures. To facilitate selections Winton offers thirty-six different body designs, seventy-two color suggestions, five styles of leathers, and innumerable fabric patterns. Eliminating the fabrics from calculation, there are 12,960 possible combinations.

GOODYEAR ALIGNMENT TESTERS

Akron, O., Feb. 11—As an addition to Goodyear service and to supplement that of the dealer, with the purpose of aiding motorists to ascertain easily and promptly whether the wheels of their cars are parallel, each Goodyear branch has been equipped with an alignment tester of the latest improved model, an instrument used in determining if the wheels are out of line. All motorists, whether users of Goodyear tires or not, may now have their wheels tested at any of the various Goodyear branches, and in a few minutes learn whether out-of-alignment is one of their troubles.

PRICE FIXING TO SUPREME COURT

Washington, D. C., Feb. 12—Accessory manufacturers and dealers will be interested to learn that for the third time the Supreme Court of the United States has been asked to consider the power of manufacturers of patented articles to control the price or conditions on which the public may obtain their product.

Attorneys for a prominent New York department store have filed with the court application for a review of the decision of the New York federal court of appeals holding against its right to sell to the public at cut rates certain talking machines and records.

The problem of the right of patentees to control the resale of their goods to the public has proved one of the most perplexing questions the court has had to deal with in 10 years. First, in 1912, Justices Lurton, McKenna, Holmes and Van Devanter, then a majority of the court, decided that a mimeograph manufacturer could control the kind of supplies to be used by the public on his machine. Chief Justice White, Justices Hughes and Lamar dissented. Justice Day was absent and there was one vacancy.

The Motor Car Repair Shop

Hints for the Amateur

MANY farm owners who have motor cars put the machine to good use by making it do such work as pumping water and pulling a trailer. There are many methods by which a car may be made to operate a pump and in the illustration in Fig. 2 one method is shown. In this the windmill pump is being operated from one of the rear wheels of the car and it becomes a very handy method when the wind is weak and no electrical or other source of power is at hand. One of the rear wheels is connected by means of a belt to a pulley as shown. The tire rim may be used as the belt guide on the wheel or a special pulley may be attached to the wheel. The other pulley has attached to its rim a long rod which connects with a walking beam. The latter is fastened to the pump rod as shown. The turning of the car wheel operates the pulley with its vertical rod attached eccentrically. In using this method only the belt driving wheel is jacked up for in nearly every make of passenger car the wheel offering the least resistance will turn. If the pump resistance is too great it may be necessary to lock the idle wheel with a chain.

A Simple Governor

A simple form of automatic governor may be made by reconstructing the present carbureter in such a way as to add another throttle above the one already installed. Although this is not possible in all makes it can be done on those with rather long mixing chambers. The auxiliary throttle is installed as shown in Fig. 1 and the throttle arm has a horizontal rod attached to it. This rod is connected with a short, vertical one with a convenient fulcrum. The regular throttle rod is replaced by one a little longer. The end of the new rod should not touch the vertical rod unless the regular throttle is wide open. The auxiliary throttle must have a stop so that when fully open it will not allow the motor to run above a given speed. When the regular throttle is operated and the motor speed then increased, it will continue to increase until the long throttle rod begins to touch the small vertical rod. This will start to close the auxiliary throttle and thus decrease the motor speed. Then if the auxiliary throttle is fitted with a stop, the engine will not operate above a set speed.

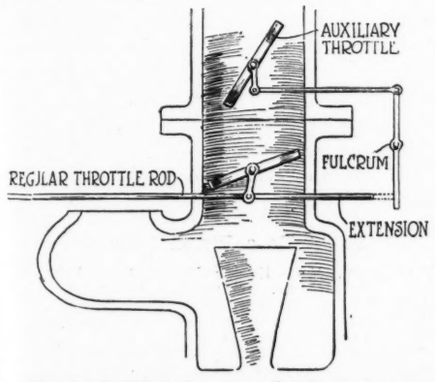


Fig. 1—Construction of a simple engine governor which will not permit the motor to operate at over a set speed

Making Road Work Easier

Those who have toured much know that it is a difficult and dirty job to jack up a rear wheel, if the car is fitted with a trunk on a rack, or the rear of the car extends somewhat from the rear axle housing. To facilitate matters, it is suggested the jack operating lever be made longer than usual. Many owners carry a specially-made lever which is long enough to extend outside the rear of the car. When in the country it often is possible to find a length of wood which can be used effectively to obtain long leverage, as shown in Fig. 3.

Do Not Overload the Car

It is a most common error of the new motorist to overload his car either with passengers or luggage to such an extent that during the first few months, or year of its use, the car is subjected to unusually severe strains. The result is that the tires do not stand up as recommended; the car shows neither the power nor speed of the company's demonstration car; springs seem to flatten out or break before the year's guarantee has run out; brakes do not work with the necessary efficiency; and the general wear and tear on the entire chassis mechanism makes the repair bill at the end of the year seem unreasonably large.

Of course, it is difficult at times to prevent overloading a car; but under such circumstances, the operator should drive more slowly, take the bumps more easily, and bear in mind that the increased weight is going to make the brakes more difficult to operate with the same efficiency as with the normal load.

Manufacturers of motor cars have been very generous in building their cars with a liberal capacity for overload; and the motorist should endeavor to co-operate with him in his efforts to prevent the abuse of the car in this manner. The manufacturer is just as anxious to have his product give good service as the owner; for he knows that a better advertisement can hardly be found.

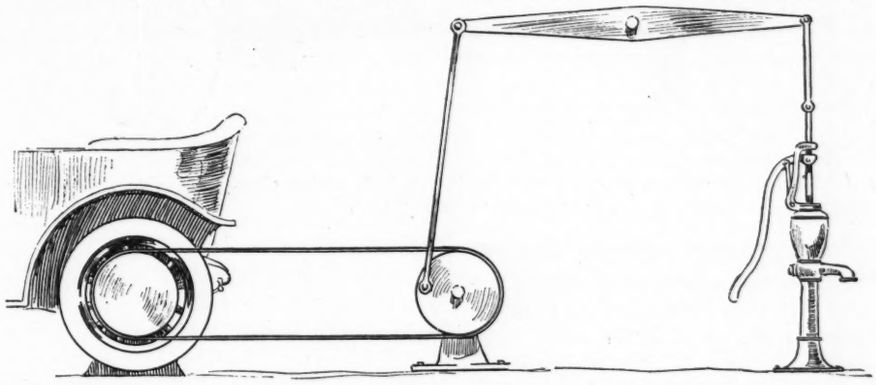


Fig. 2—How a motor car can be made to operate a water pump ordinarily run by wind power

Things to Watch

Those owners who have cars with floating rear axles and which depend upon the hub caps to hold the axle shafts in place should inspect the caps occasionally. Recently a hub cap was lost and the axle shaft started to work its way out of the housing. Another thing which many owners neglect is the clutch. Much overheating is due to the clutch slipping. Should the motor be operating rather rapidly and far too fast for the speed of the car, look to clutch and if it be of the cone type a little neatsfoot oil or Fuller's earth on the leather will make it hold better. Spring adjustment may be necessary. If of the disk type and operating dry, clean the plates with kerosene and perhaps take up on the spring. If it runs in oil, change the lubricant, first cleaning the clutch by giving it a kerosene bath.

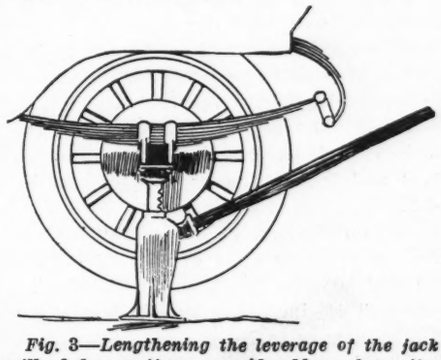


Fig. 3—Lengthening the leverage of the jack will help matters considerably when tire changes are necessary on the road

The Readers' Clearing House

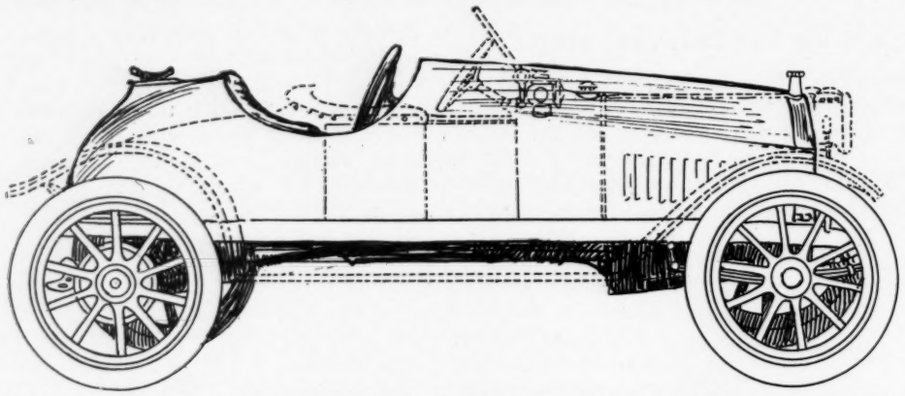


Fig. 1—Illustrating changes in Hupp roadster to put it in racing class. The dotted lines show car before changes are made

WHY NOT THE TWO-CYCLE ENGINE?

Problems of Scavenging Chief Difficulty—Type Not Well Understood by Public

BROKEN BOW, Okla.—Editor Motor Age—Explain why the two-cycle engine is not used on motor cars.

2—What is the maximum speed of two-cycle engines?

3—Why will they not run as fast as a four?

4—Why do they not develop twice as much power as a four-cycle engine of same dimensions?

5—Why was the Elmore not more popular?

6—How many cylinders did the Elmore have?

7—What was the bore and stroke, and what was the horsepower?

8—Why are two-cycle engines not as flexible as a four-cycle?

9—What prevents the live gas from igniting when it mixes with the burning gas in the cylinders?

10—Give diagram of the Elmore engine.

11—Will a single-cylinder run as fast as a four-cylinder of the same dimensions, and if not, why?—A Subscriber.

1—The chief reason the two-cycle engine is not used on motor cars at present is it did not prove popular with motor car buyers. The two-cycle is not well understood by the motoring public and by repair men. The chief inherent difficulty of the two-cycle is that it has been found very hard to make the engine scavenge properly, that is, clean out the exhaust gas after the explosion and before the fresh gas enters. Usually, it has been found, the fresh gases mix with the dead exhaust gas that remains in the cylinder to a greater extent than occurs in the four-cycle engine. This gives poor idling, low efficiency, and may cause heating. There are possibilities in the two-cycle engine that never have been developed.

2—The maximum speed of the two-cycle may be expected to be lower than that of the four-cycle, due to the fact that with the increase in speed more of the dead gas may be expected to remain in the cylinder.

3, 4 and 5—See answer to questions 1 and 2.

6—Four cylinders.

7—The cylinder sizes of the later Elmore models were, 4-inch bore by 3½-inch stroke and 4½-inch bore by 4-inch stroke.

8—See answer to No. 2.

9—The baffle on the top of the piston throws live gas up toward the top of the cylinder so that there is a layer of dead gas below the live gas. However, if the exhaust gas is still flaming it will ignite the fresh gas. This sometimes occurs and may cause the engine to reverse on a pull.

10—The Elmore engine is illustrated in Fig. 2.

11—A single-cylinder engine will not run as fast as a four-cylinder engine because it cannot be balanced as well. At high speeds, the vibration would be greater in a one-cylinder than it would in a four.

WOULD REDESIGN HUPP ROADSTER

Wants to Make Speed Car of It—Also Seeks Other Data

Milwaukee, Wis.—Editor Motor Age—What was the price of the 1912 and 1913 Hupmobile roadster?

2—What carbureter was used in the 1912 and 1913 models?

3—What make of magneto?

4—Could the 1912 or 1913 Hupmobile roadster be made into a racing car? If so, kindly illustrate.

5—What was the weight of this roadster, and what was its greatest speed?—G. A. K.

1—$900.

2—The early 1912 models were equipped with Zenith, vertical type. Later these were replaced with Breeze carbureters. In 1913 the roadster was equipped with the Zenith and the touring car with a Breeze.

3—Bosch.

4—A suggested change is shown in Fig. 1.

5—1,800 pounds. About 45 to 50 miles per hour.

Too Much Air in Mixture

Keifer, Okla.—Editor Motor Age—I have a Chalmers 30, model K, which quite often gives me trouble in starting and firing back through the carbureter. What is the cause of this?

2—I have an old-style Stromberg. Does Motor Age think it would pay me to install a new-style Stromberg? Would it give me more power and better service?

3—What is the gear ratio of this model of car?—Fred C. Osborn.

1—The carbureter is improperly adjusted so that the proportion of air supplied to that of gasoline is too great. Enrich the mixture somewhat.

2—Probably a new style carbureter would give better results.

3—Motor Age has no record of this.

QUESTIONS ARE TOO INDEFINITE

Could Not Outline a Valve Timing Without Knowing Something of the Engine

San Francisco, Cal.—Editor Motor Age—Explain the prcper timing as to opening and closing of both exhaust and intake valves and the relation of spark when full retard.

2—Give the maximum r. p. m. if so timed.

3—What make of carbureter would Motor Age suggest?

4—What speed should my 1915 Mitchell, 2-6-60 give? It has a gear ratio of 14 to 47 on direct, 37 by 5-inch tires, weight 4,640 pounds, 4¼ by 7 bore and stroke, and T-head motor. It is not speed I am after, but wish to get the best all around work. We have many good hills and mountains here and have allowed 30 miles per hour on the roads.—Reader.

1—The proper timing depends upon the speed of the motor, the size of the valves, design of the engine, and hence it would be impossible arbitrarily to give you a specific timing without knowing the engine.

2—That would also depend entirely on the design.

3—There are so many good ones that it would be impossible to indicate any one in particular.

4—Thirty miles an hour is a good average maximum speed to attain in general road work. Probably this could get up pretty close to 60 miles per hour.

CHANGING OVERLAND GEAR RATIO

Possible, But Probably Expensive—Water Vapor As a Carbon Remover

Avon, Colo.—Editor Motor Age—The gear ratio in low on the 1914 Overland is 9 to 1. Would it be possible to have new gears made, say 12½ to 1, so as to have more power on low gear? Would the transmission permit the change?

2—Would water admitted into the cylinders from the intake manifold, which is then converted into steam, keep cylinders free from carbon?

3—Would it be harmful to the engine?

4—Is liquid carbon remover injurious to the engine?—H. A. Nottingham.

1—It is possible to make this change, but it would be a rather expensive job.

2—Admission of water into the intake manifold and then into the cylinders is utilized frequently to prevent deposit of carbon and to keep carbon deposits soft. Many owners have found that such a method gives very good results.

3—It would not injure the engine.

4—Motor Age knows of none of the liquid carbon removers that are injurious.

Might Be a Piston Slap

Plattsburg, Mo.—Editor Motor Age—I have a knock in my car. Have just taken up the bearings, but it still continues. It seems to be in the front part of the motor and has a metallic sound just like a loose connecting rod. Would be very glad if Motor Age could tell me where to find it.—W. A. Walters.

If the bearings are all in good shape, look for the trouble at the piston of one

of the front cylinders. It might be a piston slap due to the piston being undersize, or it might be in the wrist pin bearing. Possibly there is a broken ring on one of the front pistons, but at any rate, examine them to determine just where it is. It would be difficult to lay the trouble at any point without examination of the engine.

RELATING TO SOME REGAL HISTORY

Peculiar Magneto Trouble Probably Caused by Demagnetization by Outside Force

Watkins, Ia.—Editor Motor Age—My model 30, 1912 Regal was equipped with a Michigan low-tension magneto and dry batteries for starting. The magnets grew weak and the car would not run on the magneto, but on the dry batteries. After having the magnets charged, the car ran 2 weeks when the magnets again grew weak. I was advised to have new magnets installed. Instead of putting in new magnets I had a Briggs magneto installed, with the result that for a time the car ran nicely, but now acts as it did with the Michigan. It run fine on the dry batteries. What is the cause and remedy?

2—Is the Michigan magneto still manufactured, and if so, by whom?

3—What was the price of the 1912 five-passenger model 30 Regal?

4—Did the Regal company market an underslung in 1912?

5—Is the model 30 rear axle a floating or a dead axle?

6—Should oil or grease be used in the rear axle and the transmission?

7—What is the speed of the Regal 30?—E. E. S.

1—The only explanation we can give is that you bring the car near to some opposing magnetic force that demagnetizes the magnets. Possibly you keep the car near an electric motor or other electric apparatus.

2—No.

3—$1,400.

4—Yes.

5—It is a semi-floating type.

6—Use heavy oil in the transmission and rear axle of this car.

7—Probably it had a speed of about 55 miles an hour when new.

REASON WHY VALVES OPEN EARLY

Wrong Conception of Time of Opening and Closing Intake and Exhaust

Aurora, Ill.—Editor Motor Age—In the issue of December 9, page 40, you give three formulas for timing a racing motor and advise the second formula as the best for such a purpose. But before we make any present changes we would like to ask Motor Age to explain why the intake valve opens 5 degrees past top dead center on the downward or suction stroke and does not close until 50 degrees past bottom dead center on the upward or compression stroke. Fifty degrees is equivalent to a little over 1 inch of the piston stroke, as our motor has a 5-inch stroke. However, by your formula the intake valve is still open, when the position of the piston has ascended 1 inch on the compression stroke before the intake valve closes. By that we would not derive the full benefit of the compression which we should get with a 5-inch stroke and would it not have a tendency of a back pressure against the carbureter?

To our idea we consider the intake valve should open immediately as the piston started on its downward or suction stroke, and close immediately as it starts on the upward or compression stroke. Or, in other words, neither the exhaust or intake valves be off their seats when the piston raises on its compression stroke.—L. Robinson.

The practice is almost universal of leaving the inlet valve open until the piston has not only reached the bottom of its stroke but has actually started back on its upward stroke again, ordinarily about ½-inch up. At first thought it would seem that some of the gas would be forced out again, but you are overlooking the speed at which the engine is running. At a normal rate of speed some fifteen complete cycles would be covered in 1 minute, and at such a speed the piston has reached the lowest point of its stroke before the gas has all been able to get in, because the gas is slower. So even when the compression stroke begins there is some suction tending to draw the gas in, providing the inlet valve is still open.

You can see from this that the exact time at which the inlet valve should close depends largely upon the speed of the engine, and no one setting will work with equal advantage at all speeds. For instance, if the timing is such that the closing is late, when the engine is running very slowly the gas is practically sent back. But it is speed running that this setting is intended for, hence the low speed disadvantage in this case is overlooked. Also if it were set to operate satisfactorily at low speed, there would be a disadvantage at high speed, for reasons already set forth.

The exhaust valve must open somewhat before the piston reaches the end of the combustion stroke, and while this may waste some of the force of the explosion, this is compensated for by the quicker scavenging and the freedom of motion given the piston on beginning the exhaust stroke. It would be incorrect to keep the exhaust valve closed up to the time the piston started up on its exhaust stroke because for a short period it would then be opposed by the very force that had driven it down. So the valve must be wide open to prevent resistance to the upward free movement.

Standard Tread Is 56 Inches

Muscatine, Ia.—Editor Motor Age—Why do not the manufacturers of cars make tread 54 inches wide instead of 56, as anyone knows that 2 inches extra width wears the tires out on the outside first on account of riding the ruts, where a 54-inch tread would make them the same width as wagons?—Wilson Rice.

You are misinformed as to the standard tread of vehicles of all classes. Motor cars are made with 56-inch tread because that is the standard. You will find that nearly all wagons have 56-inch tread also.

Chalmers Speeds and Power

Elberton, Ga.—Editor Motor Age—If a Chalmers 6-30 is running 5 miles an hour on low gear, what will be the r. p. m. of the engine?

2—What will be the horsepower under the above conditions?

3—What will be the number of r. p. m. at 15 miles per hour on high gear? How much horsepower will it develop?

4—What would be the speed of a stock car running on the road in high gear with the motor running at the speed of 3,400 r. p. m.?

5—What horsepower would it be developing?—S. T. Swift.

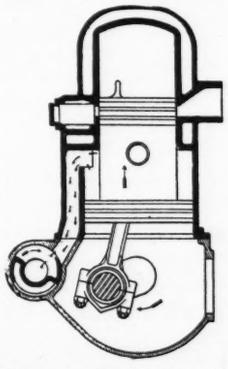


Fig. 2—Diagram in cross-section of the Elmore engine

1—Six hundred and eighty-four revolutions a minute.

2—Twenty-three horsepower.

3—Six hundred and seven revolutions a minute. Sixteen horsepower.

4—That would depend on the gear ratio.

5—There is no answer to this. The horsepower would depend on the size of the engine, the efficiency, etc.

RACING FOOD FOR RACING FANS

Odd Notes on Speed Cars and Speedway Drivers

Chicago—Editor Motor Age—How many cars has Barney Oldfield actually got at his command, and who owns them?

2—Why did Teddy Tetzlaff not race last year? If he is under any A. A. A. ban, why so?

3—Who owns the Ogren car campaigned the latter part of 1915 by Tom Alley?

4—Can Motor Age tell me how much gasoline Grant's Sunbeam consumed in the Chicago speedway race? What is the capacity of the Sunbeam's gas tank.

5—Who were the drivers of the Chalmers, Hercules and National cars in the Venice road race?

6—What is the record for one lap of an American speedway, and who holds it?

7—What is the speed of the fastest lap ever made on the Indianapolis speedway? Who made it?

8—Who owns the Bugatti that Marquis drove in the Venice road race? How many of them are being raced in the United States?—Edgar B. Henning.

1—Oldfield owns the Fiat Cyclone and the front-drive Christie and campaigns in addition the Delage, purchased for him by David G. Joyce, of Chicago, last year.

2—Tetzlaff was eligible to race last season, but retired from the game after an accident in practice for the 1914 Kalamazoo 100-mile event, in which his mechanician, Dominac Basso, suffered a fractured skull and Tetzlaff had a most narrow escape.

3—The Ogren is owned by the Ogren Motor Car Co., Chicago.

4—Grant's Sunbeam consumed 50 gallons of gasoline, the capacity of the tank, in the Chicago race. The tank was dry on the last lap and he coasted across the finishing line.

5—McCroskey drove the Chalmers and Gaston Morris the National. Motor Age records show no Hercules entered.

6—Oldfield made one lap of the Chicago speedway at an average of 11.5 miles per hour with the Christie in an exhibition drive. This is the fastest time shown by the Motor Age records.

7—The fastest lap on the Indianapolis speedway was 1 minute 30.31 seconds, made by Georges Boillot and the Peugeot in the elimination trials of 1914.

8—The Bugatti is owned by Charles Fuller, of New York and Phoenix, Ariz. It is the only car of that make to be raced in this country.

Dimming Takes Current

Gaylord, Minn.—Editor Motor Age—Who handles the Geiszler storage battery?

2—By whom is this storage battery manufactured?

3—Which of two bulbs would use the more current, a 4-candlepower or a 15-candlepower that is dimmed to 4. If any, about how many amperes on a 6-volt system?—W. F. Briard.

1 and 2—The Everready Storage Battery Works of the National Carbon Co., 514 West 57th street, New York.

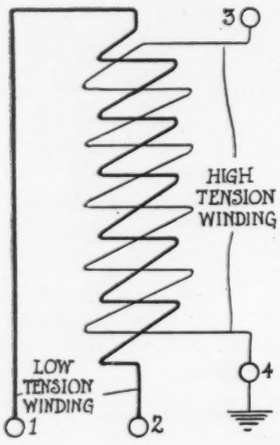
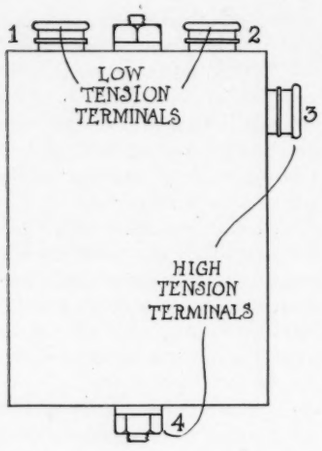


Fig. 3 — Wiring diagram of ignition coil used on 1912 Cadillac



3—The 15-candlepower that was dimmed to 4-candlepower would use more current on any system, as some is being wasted in going through a resistance.

ADJUSTING OLD SCHEBLER MODEL

The Buick Model 17 Features in the Limelight

Brooklyn, Wis.—Editor Motor Age—Kindly publish wiring diagram showing the wiring of the Remy magneto used in the model 17 Buick.
2—Also the valve timing, and adjustment of the Schebler carbureter used on this model.—H. W. Smith.

1—This is shown in Fig. 4.

2—The valve timing of the Model 17 Buick is given by the factory as follows:

intake opens 3-32 inch past top center.

exhaust opens 1-16 inch past bottom center.

exhaust closes 1-16 inch past top center.

This Buick model uses a Schebler model D carbureter, illustration of which is given in Fig. 5. First see that the air valve seats lightly but firmly. This is regulated by the adjusting screw C. Turning it to the right increases, and to the left decreases the tension. The needle valve A should be closed and then opened about three-quarters of a turn. The carbureter is now to be adjusted for low speed. Retard the spark and open the throttle about one-fourth. Turn on the gasoline and increase the supply gradually until the engine runs smoothly without missing. The throttle should be set by screw E to prevent complete closing. In making the high-speed adjustment, open the throttle wide and then advance the spark about one-quarter, and if the engine does not run smoothly, but backfires, it indicates that the tension of the air valve spring is too weak. If, after two complete turns of adjusting screw C to the right, the irregularity is not overcome, give the needle valve A about one-tenth of a turn to the left. This gives the mixture just a little more gasoline. After these adjustments are made, tighten the lock-nut D on the adjusting screw C, and also the packing nut B on the needle valve.

ASKS ABOUT SYNTHETIC GASOLINE

Reader Seeks Information on This and Other Subjects

Mt. Carmel, Ill.—Editor Motor Age—When and by whom is the Venus eight-day auto clock made?
2—Who makes air pump used on Premier and air starter 1913 cars?
3—By whom is clutch —multiple disk cork in oil—made?
4—Rear axle?
5—Should there be any appreciable play between front and gears, magneto and pump gears, or should they be so they could not be moved back and forth?
6—In a properly fitted piston should it hold the hand of a compress meter at its highest compression for any length of time?
7—When cylinders are worn slightly larger, say a couple of thousandths of an inch at the top end but perfectly smooth and free from score marks, would so-called non-leakable rings be practically equal to regrinding and fitting new pistons?
8—Is there any considerable merit to the new counterbalanced crankshaft used on a prominent make of car? Is it considered by prominent motor car men to be an innovation in motor car manufacture?
9—Is there any effort to manufacture synthetic gasoline or use kerosene carbureters since the predicted high price of gasoline?
10—Why the high cost of aluminum?
11—Is motor spirits still made?
12—Has the denatured alcohol industry grown much in the last few years?
13—Is pure aluminum or an alloy used in piston manufacture?
14—Will the same motor equipped with aluminum pistons show more power and less vibration and consume the same gasoline over one equipped with cast iron?—X. Y. Z.

1—We have no record of the Venus 8-day clock.

2—The Premier company made its own pump and air starter.

3 and 4—The Premier company.

5—No. The more play there is the more noise the gears will make.

6—It is not likely that the compression would be held at its highest point for any length of time.

7—Yes.

8—Yes.

9—Some experiments are being made to develop synthetic gasoline and to perfect kerosene carbureters, but to date little has been accomplished, at least not sufficiently to make any appreciable difference in the cost of fuel to the consumer.

10—On account of increased demand and the difficulty of obtaining it at the sources of supply.

11—No.

12—Yes.

13—Aluminum alloy.

14—Yes.

Weight of 1916 Hupmobile

Melbourne, Australia—Editor Motor Age—What is the weight of the 1916 Hupmobile touring model?
2—Would Dayton airless tires harm a car?—T. H. Merson.

1—The standard Model N Hupmobile five-passenger touring car has a weight of 2,865 pounds, according to the factory. This is with tanks filled and all equipment.

2—It is claimed that they will not harm the car.

SPOTLIGHT ON HUDSON SUPER-SIX

Acceleration Tests Showed Ability to Go 60 Miles An Hour in 23 Seconds

Toledo, O.—Editor Motor Age—Kindly give the gear ratio of the Hudson Super-Six.
2—Give the gear ratio of the new Marmon described on page 34 of the December 23 issue of Motor Age.
3—I have heard that Bob Burman picked up to 58 miles an hour in 17 seconds from a standing start in this new Hudson? Is this true?
4—Name some advantages and some disadvantages of a high speed motor for a six.
5—What is meant by double-pedal action when speaking of the clutch in shifting gears?
6—About what mileage will a Hudson Super-Six give to a gallon of gasoline and of cylinder oil?—Taylor Smith.

1—The Hudson Super-Six is supplied with two gear ratios. They are 3.5 to 1 and 4 5/11 to 1.

2—The new Marmon has a ratio of 3.69 to 1.

3—We do not know whether Bob Burman drove the car or not, but the official tests conducted by the A. A. A. show that with three passengers and with the windshield up, the car accelerated from 5 miles an hour to 30 miles an hour in 10 seconds, and reached a speed of 50 miles an hour in 19.4 seconds. In another trial, with the same passengers, the car was accelerated from a standing start to 60 miles an hour by going through the gears in 23 seconds. A reading taken at 50 miles an hour showed 16.2 seconds. These acceleration tests were made with the 4 5/11 to 1 ratio.

4—We do not know of any special disadvantages, but among the advantages might be mentioned greater power, flexibility and continuity of power output. A high-speed engine must be better balanced and its general design and workmanship must be of the best if it is to be a success.

5—We do not know, not having encountered the expression. However, it might refer to a construction in which one pedal had the two functions of throwing out the clutch and applying the service brakes.

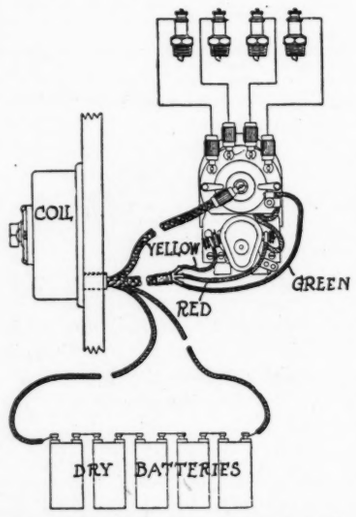


Fig. 4—Wiring diagram of Remy type D magneto, used on model 17 Buick

6—No records on this have been given out, but doubtless you could obtain the information direct from the Hudson company.

HAS DIFFICULTY WITH BATTERY

Reader Makes Some Experiments That Fail to Develop Successfully

Sabetha, Kan.—Editor Motor Age—I have been repairing storage batteries for about 1 year and have been successful in this work until recently, when I encountered some bad luck.

I took the battery down and put the plates in a solution of 5 cents' worth of common baking soda and 2½ of sal water. I left the plates in this solution until they stopped foaming. I had the separators out. Does it affect the plates any to take out the separators? Then I washed them with a hose, installed new separators, cleaned out the jars well, mixed up a solution of sulphuric acid c. p. and distilled water at 1,200, and left them to cool. Is this too strong, or is it strong enough, and does the water and soda remove any of the acid from the plates? I never have had trouble with this method on other batteries.

I burnt the connections on with acetylene and oxygen. The acetylene is not so good as hydrogen, but I do not happen to have a hydrogen tank. I have had the battery down two or three times. Always burnt on the connections by piling up common clay around them.

I discovered the negative plates were turned to lead. The positive plates seem to be O. K. had the battery connected up to charge. I put in new negative plates, but still it will not come up. Could it be possible there is something wrong with the rectifier to partially put out the alternating current? This battery had a solution of about 1,250 when I put it in the last time to charge, but seems to be in the plates but does not come back.

In installing the separators I put them in so that half of each plate is in contact with the electrolyte. Is this correct?

What is the best method of keeping separators from drying out?—R. Fletchall.

In order to get first-hand information for you, we have requested the Willard Storage Battery Co., Cleveland, O., to reply and we quote from their letter as follows: "The method pursued by this repair man is about as far from the ordinary method of repairing batteries as the sun is from the earth. In order to explain just what took place when this man emersed the elements in a solution of baking soda—we have made the following chemical equations, which show the reactions going on between the elements and the soda. In the negative plates this reaction takes place:

$$PbSO_4 + {}_2NaHCO_3 \rightarrow Pb + Co_2 + H_2O \; Na_2SO_4$$

"This reaction takes place in the positive plates:

$$PbO_2 + {}_2H_2\ SO_4 + {}_2NaHCO_3 \rightarrow PbSO_4 + Na_2\ SO_4 + 2\ CO_2 + 3\ H_2O + O$$

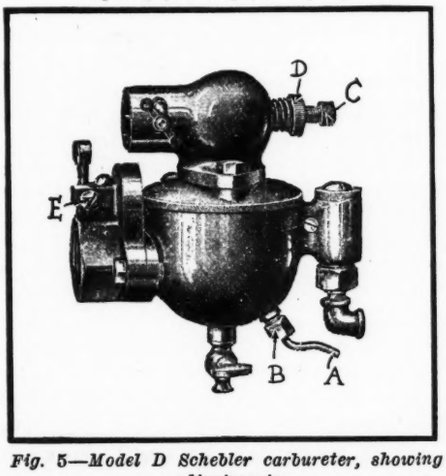


Fig. 5—Model D Schebler carbureter, showing adjustments

"If more soda were added, the reaction with the positive plates would continue on and the final products would be practically the same as we have produced by the reaction with the negative plates. However—inasmuch as you state that the positive plates are apparently in good condition—we surmise that the reaction halted at the point outlined above."

To explain this reaction in clearer wording, we would say that when the negative plates are emersed in a solution of common baking soda, a chemical reaction takes place, which liberates the lead from the compound lead sulphate—thus leaving the negative elements practically pure lead and the by-products are pure water, sodium sulphate and carbon dioxide.

When the positive plates, which are composed of lead peroxide, are emersed in a solution of baking soda, they react with the baking soda and form a compound, which is exactly similar to the negative plates when the battery is fully charged. If this reaction would continue, the lead sulphate in the elements would break up into pure lead and other by-products such as took place in the reaction with the negative plates.

A sulphated plate appears to the inexperienced battery men to be in perfect condition—while as a matter of fact inasmuch as lead sulphate is a very hard compound—it is almost impossible to charge the battery and this will explain the reason that after renewing the negative plates the battery refused to take the charge. Only an experienced battery man can tell this.

In reference to replacing the separators between the elements of a battery, these separators are made to cover the entire surface of the elements in order to prevent material collecting between the positive and negative plates—thus producing a short circuit. In the factory, all wood separators undergo a very rigorous inspection and when one is found to have even the slightest pin hole it is discarded. This is to prevent a short circuit from occurring by material collected from the positive and negative material in these holes. Inasmuch as the repair man only covered ½ the surface of the plates, this is undoubtedly a further cause of the difficulty.

In order to prevent separators from drying out, they should be kept emersed in clear water in a lead tank. This water should be changed at least once a week in order to keep the separators in good condition.

One can readily understand the danger that would come to a battery when the separators covered only ½ the surface of the elements. This leaves the entire ½ of the adjacent positive and negative plates bare. In a battery, which is assembled in this manner, a short circuit would undoubtedly develop within ½ hour after being put on charge. This is evidently the reason for the battery in question refusing to become charged.

Communications Received and Inquiries Answered

A Subscriber	Broken Bow, Okla.
G. A. K.	Milwaukee, Wis.
Fred C. Osborn	Kiefer, Okla.
Reader	San Francisco, Cal.
H. A. Nottingham	Avon, Colo.
W. A. Walters	Plattsburg, Mo.
E. E. S.	Watkins, Ia.
L. Robinson	Aurora, Ill.
Wilson Rice	Muscatine, Ia.
S. T. Swift	Elberton, Ga.
Edgar B. Henning	Chicago
W. F. Briard	Gaylord, Minn.
H. W. Smith	Brooklyn, Wis.
X. Y. Z.	Mount Carmel, Ill.
T. H. Merson	Melbourne, Aust.
Taylor Smith	Toledo, O.
R. Fletchall	Savatha, Kan.
Subscriber	Lowville, N. Y.
H. Nickerson	Fort Dodge, Ia.

No communications not signed by the inquirer's full name and address will be answered in this department.

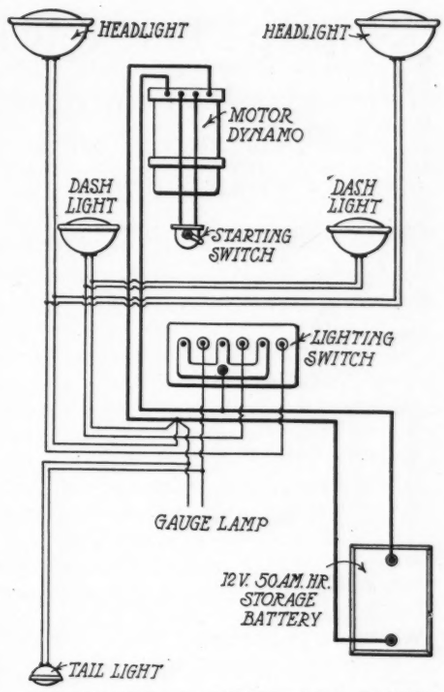


Fig. 6—Diagram of Delco wiring on 1912 Cadillac

Wiring Diagram of 1912 Cadillac

Lowville, N. Y.—Editor Motor Age—Please publish wiring diagram of the Delco system as used on the 1912 Cadillac.

2—Also, please publish a diagram of the induction coil and show the direction of the primary and secondary current from the time of entering to leaving the coil.—Subscriber.

1—The wiring of the Delco starting and lighting system used in the 1912 Cadillac is shown in Fig. 6.

2—Wiring diagram of ignition coil used in the 1912 Cadillac is shown in Fig. 3.

Cannot Make This One Out

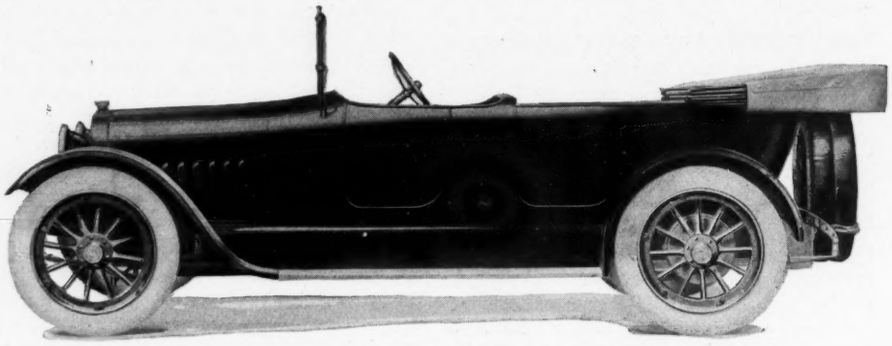
Fort Dodge, Ia.—Editor Motor Age—If one pound is added to the weight of a wheel or rim, what is this weight equivalent to in the body? Also explain how this is obtained.—H. Nickerson.

Motor Age is unable to understand your question. If you will be good enough to put the query clearly, we will be pleased to answer you.

Empire Has New Four Which Is Larger than Its Predecessor

Price Has Been Increased $40, Compared with Previous Four

Brakes and Spring Suspension Changed—Refinements Noted



New Empire four, styled the model 35, has a wheelbase of 116 inches

SEVERAL new features and refinements in design characterize the new Empire four, known as the model 35, just announced by the Empire Automobile Co., Indianapolis, Ind. Changes have been made in body design, as compared with the previous four, and except for the Teetor motor, the job is larger in every way than any four-cylinder Empire yet produced. The price has been increased $40, as compared with the four announced last fall, listing now at $935.

Wheelbase Is Longer

Being more specific, the new model 45 differs from its predecessor in point of longer wheelbase, rear spring suspension, adoption of vacuum fuel feed system and in brake arrangement. There is a marked elimination of unnecessary weight, but exceptional sturdiness in driving parts is noticeable. Besides the mechanical refinements, sweeping changes have been made in the body and finish of the car. The body corresponds closely to the six, which was new with the Empire last summer, having the double cowl effect. A new color scheme has been adopted, autumn brown being the standard finish, with Spanish leather upholstery to match.

The motor is Empire-Teetor, T-head design, four-cylinder, 3⅞-inch bore and 5-inch stroke. This design allows 2-inch valves without lengthening the motor. The water heater is bolted to, and the intake manifold passes through the cylinder block. The pistons, cast from the same grade of grey iron that is employed in construction of the cylinder block, are fitted with three rings, one of which acts as a wiper. The connecting rod is drop-forged, the pin being carried on two bearings cast in the piston and rigidly attached to the rod. The crankshaft is of the three-bearing type. All main bearings are babbit-lined and bronze-backed. The camshaft is of built-up type, with glass hard ground cams—this shaft is fitted with three bearings.

Spiral-cut timing gears, two of cast iron and three of steel, are employed. The aluminum crankcase incorporates features of barrel type construction, giving extra rigidity to the crankshaft. The lower part is arranged to allow easy access for adjustment of crankshaft and connecting rod bearings.

Lubrication is by patented splash system consisting of two overflow basins located in lower part of crankcase. At the bottom of these basins, holes are drilled of sufficient size to admit a given quantity of oil. The lower ends of the connecting rods are fitted with scoops which pass through this oil, keeping in circulation the necessary amount of lubrication. Cast integral with the crankcase are oil pockets located over each main bearing. The lower portion of the crankcase, outside of the basins noted above, acts as an oil reservoir. Ignition is by magneto type distributer of battery current with automatic type switch, which throws off when the motor stops, preventing drainage of the battery. Fuel supply is fed by the vacuum system from supply tank of 17-gallon capacity to Schebler, model R carbureter fitted with hot-air connection and dash air control. Thermo-syphon cooling is employed.

Radiator a Fedders

The radiator is a Fedders cellular type with expanding cells. The shell is of one-piece stamped steel rounded to conform with the general car lines. Protection is afforded by pressed-steel guard extending from side to side of the frame. The fan is pressed steel three-blade type driven by a belt operated directly from the generator shaft.

The electrical equipment is Auto-Lite, two-unit, with generator mounted on the left side of the motor and the starter acting on a hardened flywheel ring through the Bendix drive application.

Adoption of cone clutch is also noticeable. The cone is 13¾ inches in diameter with a 2-inch face of chrome leather. Adjustment is afforded by six bolts under the face and a clutch brake is fitted.

As in all previous Empire models, unit powerplant construction is followed, the gearset being bolted to the flywheel housing. Three speeds forward and one reverse with direct on high are provided. Gears are extra heavy nickel steel with rounded teeth to facilitate meshing. The control is ball and socket type with vertical lever. Being incorporated in the unit, this lever acts directly upon shifting forks, no intermediate rods being required. The main shaft is mounted on New Departure bearings and the countershaft on bronze bearings.

Rear drive is of Hotchkiss type, drive being taken through the springs. The rear axle is Weston-Mott floating, single-bearing type. Hyatt high-duty bearings are fitted throughout. There are two sets of brakes, internal expanding and external contracting, operating through an equalizer system. The hand brake is attached to the equalizer by flexible steel cable. Foot brake rod is in two pieces, the first section connecting the pedal to a lever on the center cross-member with another rod from this lever to the equalizer. By this construction the use of a countershaft is made unnecessary and brake-rod rattle is eliminated.

The steering column is located at left side with gearshift and hand brake in center of driving compartment. The steering gear is oversize, irreversible type with full gear allowing numerous adjustments. The horn is motor driven electric type.

Seven single lighting units are furnished. The two head lamps are fitted with 15 candlepower bulbs and at the top of each are smaller bulbs for city driving. The tail lamp, located on rear fender, has license bracket in combination. Dash lamp is on the instrument board and the tonneau is lighted by an individual lamp set on the rear of the front seat. There also is an extension lamp for attachment in dash socket. Throughout the lighting system armored cable is used and as a safeguard the entire system is protected by fuses located on the dash block.

Semi-Elliptic Rear Springs

The wheelbase is 116 inches, an extension of 4 inches over the previous four cylinder models. The frame is of exceptionally sturdy construction, with deep channel section of heavy-gauged steel dropped to lower the center of gravity. Truss construction is employed at the rear and with sturdy cross-member supports the rear extension of frame carries the gasoline tank and also semi-elliptic springs. This is the first time semi-elliptic rears have been employed in Empire construction, and being made 52 inches long, give a car of exceptionally easy rising qualities. Fenders are crowned with baked enamel finish. Another feature is oversize tire equipment, 33 by 4, with non-skid in rear.

With full streamline yacht design and convex rolled sides and high cowl, the body is most attractive in design. It conforms very closely with the Empire six. With the double cowl effect in tonneau an unbroken line from dash to rear of body is permitted. Exceptional leg room in both driving compartment and tonneau is noticeable. The front seat is 38 inches wide, and rear seat 47 inches wide. The deep cushions have base-tempered steel springs and are upholstered in Spanish leather. Doors are full U-type, 21 inches wide, with concealed hinges and handles. The standard body finish is autumn brown, with wheel and running gear to match. In addition to this, any desired color is furnished to order.

The equipment is complete in every detail. In addition to the two-unit starting and lighting system, there is Willard three-cell 6-volt storage battery; five bow one-man top covered with Dupont Rayntite material, with inside-operated storm curtains; tire carrier arranged to take two spares, demountable rims; rain-vision, ventilating type windshield; Stewart speedometer, etc.

TRUCK LOCKING LAW PROTESTED

Detroit, Feb. 14—That portion of the motor vehicle ordinance recently enacted in this city which requires the owner of delivery trucks of 1,500-pounds capacity or less to be locked by some means to prevent them being stolen has raised a great deal of protest, especially by the retail grocers of Detroit, who claim that the law is a discrimination against the retailer. The purpose of the ordinance was to reduce the number of thefts of motor vehicles. The grocers claim that delivery vehicles are very seldom stolen and that the only result of the new law will be to cause them a great amount of unnecessary annoyance and loss of time.

INVENTS NEW VALVE MECHANISM

Boston, Mass., Feb. 14—Rollin Abell, of Boston, designer of the Standard speedometer, is arranging to have some racing cars equipped with a new valve mechanism that he has invented, and the use of which some of the big companies are considering. The experimental motor developed a speed of 6,000 revolutions per minute, a higher speed than even the newly designed 16-valve cars have attained. He states that it will have fewer valve parts; in fact, on an eight-cylinder motor there will be fewer parts than on the ordinary four-cylinder type. Aside from the fact that an overhead camshaft is employed to operate the valves, it bears no similarity to any other type of valve mechanism.

NEW TIRE REPAIR METHOD

Akron, O., Feb. 14—Within the past week repairmen in every part of the country have been notified by the B. F. Goodrich Co. of an improved method of tire repair which may save car owners thousands of dollars. This is the result of more than a year of study and scientific investigation by the repair department of the factory.

Two principal difficulties have been found with repairs as made heretofore. The repairman often has not taken the injury out of the tire. Plies of fabric have been heaped upon the injured parts but the injury itself remained. The repair was no more than a patch, a makeshift, and often the patch was as stiff as a piece of armor plate. The stiff patch and the resilient tire body parted and the tire shuffled off before its time.

In some cases repair materials have been used which were not designed to harmonize. As a result, part of the tire was either over-cured or under-cured.

Under the new method the same tools and equipment are used, the repair costs practically the same as heretofore, but the tire goes back on the road nearly as strong as before injury.

COLORADO TRADE PLANS CAMPAIGN

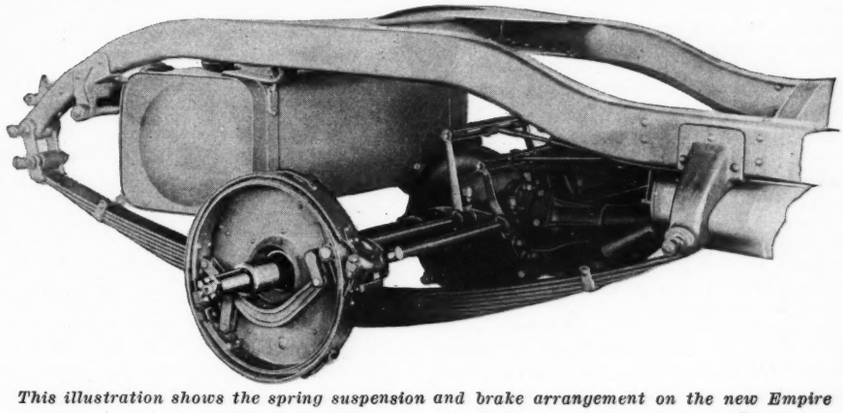
Denver, Col., Feb. 12—Two new steps toward broadening its scope of influence and service for the betterment of the motor car industry in this territory are being planned by the Automobile Trades Association of Colorado. One is a campaign for state-wide organization, and the other is the establishing of two educational bureaus for practical aid in promoting efficiency among salesmen and repairmen. These bureaus will be affiliated with the main trades body, but their meetings and other activities will be in charge of the bureau members independently. New shop methods will be presented by experts, and ideas exchanged among the members concerning practical ways of handling every-day problems.

CHEVROLET PLANS FOR 460 DAILY

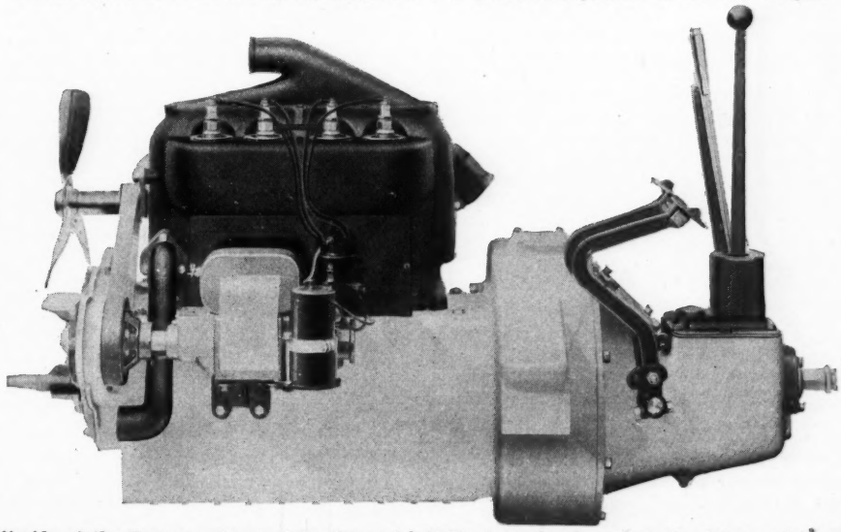
Flint, Mich., Feb. 12—The production of the Chevrolet Motor Co., which this month is on a basis of 230 cars a day, is to be increased monthly until it reaches 460 a day by August 1, according to W. C. Durant, president of the company.

Arrangements have been completed for the erection of a large axle plant. Work on the new assembling plant and on the extension of the motor plant will be hastened. The contract for the erection of the assembling plant in Oakland, Cal., has been signed, and this plant is expected to be ready in the spring. About 100 homes for workingmen also will be put up in Flint by the Chevrolet company in order to be able to increase its working force to the mark set.

All motors, axles and nearly all the other parts needed in the assembling of the cars will be made in Flint, while the plants in New York, St. Louis, Tarrytown, N. Y., Oakland and Owasha, Ont., only will assemble cars.



This illustration shows the spring suspension and brake arrangement on the new Empire



Left side of the Teetor motor used in the model 35Empire, showing magneto drive and location

From the Four Winds

To solve the problem brought about by the street car strike at Seattle, Wash., motor cars attached to cutters were used to take employes to the Chanclor & Lyon Co. store. The motor is a Studebaker

MOTOR Car Sermon—The congregation attending the First Methodist Episcopal church of Portland, Ind., recently listened to a motor car sermon by the pastor, Rev. Asher S. Preston. The subject was "Lessons from the Highway—a 1600-mile Tour in a Maxwell."

Plan Tractor Show at Des Moines—The committee on agriculture of the Des Moines Chamber of Commerce, Des Moines, Ia., is arranging for the first annual Iowa tractor show to be held there next fall. A 1,200-acre tract of land west of the city will be leased for the tractor demonstrations. Des Moines is to be on the midwest circuit of tractor shows. E. T. Meredith is chairman of the committee in charge of the arrangements.

Would Unite Motorists—All owners of cars in Champaign county, Ill., have been invited to join a new organization, the object of which is, "to meet, discuss, and prepare to carry out in an approved manner, all such matters as shall or may appear to be beneficial to the owners with reference to pleasant and profitable traveling, the prevention of depredations and of the violations of the laws, particularly touching the ownership and use of motor cars." W. H. Miller, Champaign, Ill., has sent out a circular letter to every car owner in the county and will call a meeting shortly to organize.

Iowa Compiles Accident Statistics—Eighty-seven persons were killed and 1,500 severely injured in motor accidents on the highways of Iowa during 1915 according to a report by the Iowa highway commission. Two-thirds of the accidents were due to speeding, inexperienced driving, and the use of intoxicating liquors by drivers, according to the report. Nine persons were killed by motor accidents in December, 1915. A study of the statistics shows that one out of every fifteen accidents resulted in a fatality. Road conditions caused but few of the accidents except where speeding was contributory.

Court Fight Over Fees—Whether the $9,000 in fines collected for violations of the speed law last year belong to the state of Washington or Pierce county is the question before court. The state claims the money and the county commissioners brought proceedings to prevent the county treasurer turning it over to the state treasurer. The state contends that a statute of 1897 requires he payment of the money into the state treasury, but the county contends that this money always has been and should continue to be paid to the county, to be used to pay the salaries of the three traffic officers.

Coming Motor Events

SHOWS

February 20-27—Grand Rapids, Mich., show.
February 21-26—Louisville, Ky., show.
February 21-26—Omaha, Neb., show.
February 21-26—Syracuse, N. Y., show.
February 22—Los Angeles, Cal., speedway race.
February 28-March 4—Cedar Rapids, Ia., show.
February 28-March 4—Utica, N. Y., show.
February 28-March 4—Indianapolis, Ind., show.
February 29-March 4—Sioux City, Ia., show.
February 29-March 4—Fort Dodge, Ia., show.
March 4-11—Boston show.
March 8-11—Davenport-Rock Island-Moline show.
March 8-11—Mason City, Ia., show.
March 9-11—Kenosha, Wis., show.
March 15-18—Trenton, N. J., show.
March 20-25—Twin Falls, Idaho, show.
March 21-25—Deadwood, S. D., show.
March 22-25—Saginaw, Mich., show.
April 10-15—Seattle, Wash., show.

CONTESTS

May 6—Sioux City, Ia., speedway race.
May 13—New York, Sheepshead Bay speedway race.
May 20—Chicago speedway amateurs' race.
*May 30—Indianapolis speedway race.
June 10—Chicago speedway race.
June 28—Des Moines, Ia., speedway race.
July 4—Minneapolis speedway race.
July 4—Sioux City speedway race.
July 4—Track meet, Couer d'Alene, Ida.
July 15—Omaha, Neb., speedway race.
August 3-5—Hillclimb, Pike's Peak, Colo.
August 5—Tacoma speedway race.
August 18-19—Elgin road race.
September 4—Indianapolis speedway race.
September 9—Des Moines, Ia., speedway race.
September 15—Indianapolis speedway race.
September 29—Track meet, Trenton, N. J.
September 30—New York, Sheepshead Bay speedway race.
October 7—Omaha speedway race.
October 14—Chicago speedway race.
October 19—Indianapolis speedway race.

* Sanctioned by A. A. A.

Against D. C. Double Taxation—The district commissioners have made a favorable report on the bill introduced in Congress by Representative Page, of North Carolina, to impose a special tax on motor cars in the District of Columbia, based upon horsepower. The commissioners, however, recommend that the bill be so amended as to provide for the elimination of the personal tax on motor vehicles.

Campaign Against Improper Tail Lights—One hundred, or more, drivers were served with summonses by a New York traffic squad which Commissioner Woods went out recently to watch for tail lights that did not comply with the new law. One officer stood in the street 50 feet from a mark, and as the cars passed the mark he would try to read the numbers. If he could not he blew his whistle and another policeman, a block away, stopped the car and served the summons.

Parts Under the Hammer—Two carloads of parts, discarded by the Crescent Motor Car Co., Benton, Ill., when it moved to St. Louis, were sold at auction in the mound city and brought about $1,200, or less than a tenth of their original value. Thirty-six sets including front and rear axles and differentials of an obsolete pattern, which originally cost about $200 each, were sold for from $5 to $10 each. Eighty-eight frames, which originally cost $150 each, brought $1.50 each under the hammer.

Muddle Over Ohio Tags—The Ohio state auditor is holding up a voucher for $9,000 in payment for 1916 license tags, on the grounds that the contract was not awarded after competitive bidding. The contract was awarded to the Davies Co., Akron, of which Senator Charles W. Wickline is at the head. It is said that the contract was sublet to the New York Metal Ceiling Co. The bill for the first consignment of tags was presented a week ago but has been held up by the state auditor. The tags cost the state 19¼ cents per set.

Missouri Car Insurance Figures—An increase of about 60 per cent in the amount of insurance sold during 1915 over the business of the previous year is shown in the annual report of the American Automobile

Insurance Co., St. Louis, Mo. Premiums collected in 1915 by this company totalled $856,233 as compared with $533,165 in 1914.

Good Roads Activities

Illinois Roads Bad—Peorians have just had an example of what an impassable road means. During the recent flood the Narrows road in Illinois, just outside of Peoria, was in such condition for a week that it was with difficulty that horse-drawn vehicles were able to go over it, to say nothing of motor cars. While Illinois is first in agriculture, it ranks twenty-third in roads, according to a statement made by Governor Dunne recently.

Spade and Car Membership Requisites—The ownership of a spade and a motor car are the unique requisites in the Greater Muskogee Association, Muskogee, Okla., which has for its purpose the arousing of sentiment in favor of better roads. Other similar associations are to be organized in every community of the state, with the final object in view of creating sentiment to back a demand on the next state legislature for measures adequate for the building of hard-surfaced roads. The commercial clubs of the state are being used to foster the development of the new associations.

Iowa Plans Lincoln Highway Improvement—The season of 1916 will mark a new record of expenditures in Iowa for the improvement of the Lincoln highway. Ames has arranged to pave more than a mile of the road. Crawford county has accepted the offer of the Lincoln Highway Association of enough cement to pave 2 miles of the road in that county. Marshalltown has the same project for a 2-mile stretch. The Otter Creek bottom in Tama county is to be paved with concrete east of Gladstone on the same plan. Iowa already has spent $250,000 to improve the road. Council Bluffs has paved the highway inside the city limits at a cost of $100.000. Iowa's roads in the next year or two will be far superior to its highways of two years ago.

Iowa County Will Improve Roads—Clay county, Iowa, will gravel its entire system of main county highways, 163 miles in extent, during the coming season. Funds are available and materials are being gathered for the improvement.

Springfield Club Marks Roads—At a meeting of the board of governors of the Springfield Automobile Club, Springfield, O., last week, it was decided to get out several hundred metal road signs. These will have a blue background with white lettering, and an arrow will point the way to Springfield on roads leading to that city.

Road Scouts on Trip—A party of good roads scouts from the Birmingham Motor and Country Club, Birmingham, Ala., are making road maps of all the roads in Alabama which lead to Birmingham. At first it was intended to make the project a local issue, affecting only the roads leading into Birmingham, but now it is believed possible to make it statewide, since enthusiasm has been aroused.

Ingenious scheme of using a motor wheel to run a toboggan. To secure traction a studded tire is used in place of an ordinary tire

With the Motor Clubs

I. G. O. A. to Meet at Rockford—Through the efforts of W. B. Taylor, Rockford, Ill., the retiring president of the Illinois Garage Owners Association, that body will hold its next convention in Rockford next September, the exact date to be selected later. Urbana, Moline and several other cities sought the honor of entertaining the dealers.

Cleveland Club to Move—The Cleveland Automobile Club, Cleveland, O., has leased new quarters, taking in the second floor of the new addition to the Hollenden Hotel. It is expected the headquarters of the club will be moved about August 1, when the addition will be finished. The new quarters will have accommodations for approximately 10,000 members.

Ohio A. A. Wants New Law—According to plans just announced the next annual meeting of the Ohio Automobile Association will be held at Akron, O., March 31 and April 1. Because of the large increase in the number of local clubs, many of which have affiliated with the state association, the meeting promises to be the largest in the history of the organization. Steps will be taken at the meeting to secure the legislation desired at the hands of the Ohio general assembly. One of the important things desired is a state law requiring all vehicles to carry lights after dark, the lights to be visible in front and in the rear.

Recent Incorporations

Albany, N. Y.—Adirondack Motor Sales Corp.; capital stock $25,000; incorporators, E. V. Bulow, H. E. Floyd, G. N. Nay.

Albany, N. Y.—Niagara Motors Corp., to manufacture engines, motors, tools, etc.; capital stock $225,000; incorporators, H. M. Pease, M. M. Hedden, C. Narraway.

Albany, N. Y.—Perfection Air-Starter Corp., to manufacture starters; capital stock $100,000; incorporators, F. I. Sheppard, Edmund Baumer, L. M. Brimmer.

Albany, N. Y.—Listman-Stratten Co.; capital stock $80,000; incorporators, H. E. Listman, E. V. Stratten, J. P. Judge.

Albany, N. Y.—Remington Motors; capital stock $1,000; incorporators, W. P. Buchler, L. R. Levy, J. B. Kalmuk.

Albany, N. Y.—Steinbart and Wegner Automobile Works; capital stock $5,000; incorporators, W. A. Steinbart, R. W. Wegner, D. Wegner.

Albany, N. Y.—Bristol Motors Corp., to manufacture motor cars, etc.; capital stock $40,000; incorporators, A. J. Furth, H. H. Walter, O. S. Burr.

Albany, N. Y.—Flatbush Auto Service Co.; capital stock $6,000; incorporators, Rudolph Fulling, George Fulling, August Fulling.

Batesville, Ind.—Gibson Garage; capital stock $10,000; incorporators, E. E. Gibson, C. S. Gibson, S. Gibson, A. F. Beck.

Chicago—Hughey Motor Car Co.; capital stock $25,000; incorporators, M. J. Quan, R. W. Daniels, W. R. McGowan.

Chicago—Gramm Commercial Car Co., to manufacture and sell motor cars and repair parts; capital stock $25,000; incorporators, E. C. Larned, H. A. Gardner and A. T. Carton.

Chicago—Kenny Auto Co.; capital stock $5,000; incorporators, H. L. Kenny, D. F. Kenny and J. A. Graber.

Chicago—Braender, Rubber and Tire Co.; capital stock $10,000; incorporators, P. H. Braender, H. A. Sternfeld and N. A. Haffenberg.

Cincinnati, O.—Wray-Chase Motor Service Co.; capital stock $100,000; incorporators, Mr. Springer, J. M. Wray, W. Chase, Guy W. Malton and M. G. Durham.

Cincinnati, O.—R. & D. Motor Car Co., to deal in motor cars and accessories; capital stock $20,000; incorporators, David W. Rudisell, Frank Davis, William F. Davis, William A. Davis and J. H. Reisinger.

Cleveland, O.—Ravenna Rubber Co., to manufacture and sell rubber articles; capital stock $100,000; incorporators, L. E. Yaggi, W. H. Hasselman, H. Hill, W. G. Radcliffe and Helen M. Doyle.

Columbus, O.—O. G. Roberts Co., to deal in motor cars and operate a repair shop; capital stock $25,000; incorporators, O. G. Roberts, W. H. Jones, Frank A. Hunter, W. C. Brossman and R. C. McCoy.

Crane, Mo.—Crane Motor Car Co.; capital stock $5,000; incorporators, T. B. Robertson, Nell Robertson, James Williams and Flora Williams.

Des Moines, Ia.—Wertz-Seeman Auto Co.; capital stock $25,000; incorporators, W. W. Wertz, G. M. Seeman.

Denver, Colo.—Headington Auto Co., to distribute motor cars; capital stock $40,000; incorporators, H. C. Headington, C. G. Headington, Leon Nelson.

Indianapolis, Ind.—Day & Night Rubber Co.; capital stock $10,000; incorporators, K. W. Gant, R. E. Lindley, W. A. Engelhart, J. C. Uhl.

Indianapolis, Ind.—Convertible Auto Body Mfg. Co.; capital stock $25,000; incorporators, W. O. Cornwell, B. F. Cartwright, J. Cartwright.

Indianapolis, Ind.—American Carbureter Co.; capital stock $25,000; incorporators, H. C. Merriam, Ray C. Small, G. L. Harrington, J. R. Morgan, J. A. Osborn.

London, Ky.—London Motor Car Co.; capital stock $10,000; incorporators, G. C. Watkins, J. S. Watkins and M. A. Watkins.

La Center, Ky.—Seaton Auto Co.; capital stock $25,000; incorporators, S. T. Payne, C. E. Seaton and C. R. Quarles.

Louisville, Ky.—Breyfogle-Green Co.; capital stock $6,000; incorporators, Forest Breyfogle, Forest Breyfogle, Jr., and Albert L. Green.

Los Angeles, Cal.—Hobbs Battery Co.; capital stock $50,000; incorporators, A. A. Hobbs, T. E. Mitchell, W. E. Harrison, W. W. Preston, H. V. Andrews.

New York—Springfield Body Corp. of New York; capital stock $2,500,000; incorporators, E. L. Orvis, L. D. Strauss, T. Faber.

Newark, N. J.—Moran Oil & Supply Co., to deal in oils, motor car supplies, etc.; capital stock $25,000.

Oklahoma City, Okla.—Commerce Motor Co.; capital stock $3,000; incorporators, Lon Edwards, H. Strauss, J. E. Pittman, J. H. Medlin.

Patterson, N. J.—Hammond Safety Auto Lock Co., to manufacture safety auto locks, etc.; capital stock $25,000.

Philadelphia, Pa.—Malcom Motor Car Co., to manufacture passenger cars and trucks; capital stock $1,000,000; incorporators, F. D. Buck, G. H. Dillman, M. L. Horty.

Portland, Ore.—E. A. Patch Co.; capital stock $50,000; incorporators, C. F. Robinson, A. L. Robinson, J. F. Dana.

Philadelphia, Pa.—Philadelphia Motor Car Co.; capital stock $50,000; incorporators, O. G. Swain, W. M. Hartzell and J. M. Dickson.

Paducah, Ky.—A. N. Mason's Automobile Clutcher Fire Remover and Replacer Co.; capital stock $10,000; incorporators, A. N. Mason, Ivan Merritt and M. Stevers.

Richmond, Va.—Motor Supply Co.; capital stock $6,000; incorporators, John W. Watson, F. B. Watson, K. H. Cradick.

Richmond, Va.—Acme Garage; capital stock $5,000; incorporators, H. V. Price, J. B. Shumate.

Wilmington, Del.—Princess Motor Car Co.; capital stock $1,000,000; incorporators, O. C. White, I. N. White, F. W. Barbee.

Among the Makers and Dealers

EIGHT-TON Load on 5-Ton Truck—The E. T. Towar Co., Detroit, Mich., recently delivered in a single load, to a large Detroit motor car company, 1,115 tires, a paying load of 8 tons. The hauling feat was performed by a Knox tractor with an unusually large stake-side semi-trailer, as shown by the illustration. The normal load for a 5-ton truck doing the same sort of work is 500 tires—considerably less than half the load that was made possible by applying the tractor and trailor principle. An interesting feature of this large-unit delivery was that the tractor, because of its short turning radius, was able to drive directly into the stock room, and to turn around and drive out again after unloading.

BLOSSOM Heads Hub Jackson Sales—Howard Blossom has been appointed manager of the wholesale department by the Jackson Motor Car Co., Boston, Mass.

Chalmers Makes Two Appointments—The Chalmers Motor Co., Detroit, Mich., has appointed W. H. Radford as assistant engineer in charge of design and K. M. Wise assistant engineer in charge of the experimental division.

Prey Scripps-Booth Purchasing Agent—H. C. Prey, who was assistant purchasing agent of the Scripps-Booth Co., Detroit, Mich., has been made purchasing agent to succeed A. J. Downey, who will henceforth devote all his energies to the Scripps-Booth Co.

Parazek Treasurer Illinois Brass—Frank Parazek, in addition to being president of the Illinois Brass Co., Chicago, has been made treasurer, R. C. White, the former treasurer having resigned. H. P. Houghton recently has been made secretary. The company has moved to 226-32 West Ontario street.

Chalmers Sells Boston Branch—One of the biggest motor transactions in New England was completed last week when the Chalmers Motor Co. of Massachusetts was purchased by O. L. Halsey, Boston, Mass. The latter had been handling Packard cars at Kansas City for 6 years, but as he formerly was a Bostonian he wanted to return to the Hub.

Gets Chevrolet in St. Louis—Fred Grinham, one of the pioneer motor car men of St. Louis, Mo., has organized the Triangle Motor & Sales Co., and has secured the Chevrolet agency for St. Louis and St. Louis county. The Triangle company will occupy the building at Lindell and Olive streets now being used by the Chevrolet Motor Car Co. of St. Louis, which hereafter will sell to dealers only. A Triangle service station has been opened at 3330 Washington avenue, a few blocks away, where a complete line of Chevrolet parts are carried.

Much Premier Capital Hoosier—The Premier Motor Corp., Indianapolis, Ind., has announced that $1,710,000 of its total capital of $2,500,000, is to be represented in Indiana.

Detroit Steel Products Adds—The Detroit Steel Products Co., Detroit, Mich., will erect an addition to its plant which will give it about 60,000 square feet additional floor space. At the annual meeting of the board of directors the following officers were elected: Walter S. Russel, president; Robert S. Drummond, vice-president; J. G. Rumney, secretary-treasurer and general manager.

Marvel Goes Back to Fiat—Harry Marvel has gone back to the Fiat branch at Boston, Mass., where he formerly had charge of sales before taking on the Waverley line of electrics.

Jones Joins Beaver—Frank Jones has been engaged by the Beaver Mfg. Co., Milwaukee, Wis., as factory superintendent, succeeding W. A. Carrell, resigned. Mr. Jones took charge February 4.

Represents Acme in Two States—Niedermiller & Ewald, Detroit, Mich., has been appointed Michigan and Ohio representatives for the Acme Die Casting Corporation, Brooklyn, N. Y.

Homan Lozier Purchasing Agent—C. C. Homan has been made a vice-president of the H. A. Lozier Co., Cleveland, O., and will be in charge of the purchasing department, besides giving attention to the production.

Canadian Maxwell Price Reduced—The Maxwell Motor Co. of Canada, Ltd., Windsor, Ont., has reduced the price of the Maxwell cars in Canada. The roadster which formerly sold at $900 now costs $830 and the price of the touring car has been reduced from $925 to $850.

Maxwell Plant in Canada—The Maxwell Motor Co. of Canada has begun construction of a large factory building at Windsor, Ont., where it will build Maxwell cars for Dominion trade. Canadian dealers heretofore have been supplied from Detroit. The Windsor city council donated a site for the plant.

Princess Increases Capital Stock—The capital stock of the Princess Motor Car Co., Detroit, Mich., has been increased from $100,000 to $1,000,000. The output of Princess cars for 1916 is scheduled to be 2,300. It is likely that the production facilities will be increased in expectation of a much larger production for 1917.

Alliance Elects Officers—The annual meeting of the stockholders of the Alliance Motor Car Co., Alliance, O., resulted in the election of C. C. Mummert, president; C. G. Kline, vice-president; Sydney L. Geiger, secretary; J. O. Ellis, treasurer, and O. R. Mummert, general manager. The records of the last year were very satisfactory.

Salem Rubber Will Begin Operating—The Salem Rubber Co., a concern with an authorized capital of $600,000, shortly will start operations in Salem, Pa., in the plant formerly occupied by the American Case & Register Co. The new company will have a working force of 150 men and a daily output of 250 tires. A. F. Gordon, New Castle, Pa., will be the general manager of the new plant. C. E. Meyer, Pittsburgh, is financially interested. The new concern will manufacture a standard guaranteed tire with "Salem" as its trademark.

Beardsley Electric Elects—The annual stockholders' meeting of the Beardsley Electric Co., Culver City, Cal., was held in the new factory building last week, and the following directors were elected: Harry H. Culver, Volney S. Beardsley, R. H. Raphael, C. H. Warner, Charles H. Sorg, Lawrence M. Welsh, John T. Shannon. The directors met and elected Volney S. Beardsley president, Harry H. Culver and R. H. Raphael vice-presidents and Arthur Wright secretary.

The Show Circuit

Kenosha, Wis., Show—The dates of March 9 to 11 have been selected by the Kenosha Retail Association for the third annual show, which again will be held during the same time that the Kenasha county farmers' institute is in session in Kenosha. The general committee in charge consists of T. J. Dale, Joseph Funck, Charles T. Jeffery, Adolph Epstein and Henry DeBerge.

Fort Dodge, Ia., Show—The Fort Dodge Automobile Association, Fort Dodge, Ia., announces 20,000 feet of floor space in the new terminal building already sold for the fifth annual Fort Dodge show which will be held February 29 to March 4. It will be the biggest event ever staged by the dealers there. Officers of the association are: A. C. Heath, president; G. W. Tremaine, secretary; J. W. Smith, vice-president; M. Q. Dailey, treasurer; and F. Mann, traffic manager.

John T. Shannon was installed as production superintendent.

Gordon Goes to Menominee—The D. F. Poyer Co., Menominee, Mich., manufacturer of the Menominee trucks, has appointed Gordon M. Evans works manager. Mr. Gordon was formerly with Dodge Bros., Detroit.

Hertzler Moves Up—John W. Hertzler, who has been the western representative of the Bearings Company of America, has been appointed assistant manager, and now is located at the factory, Lancaster, Pa. Mr. Hertzler is succeeded in the Detroit office by William C. Little, who has represented Brandenburg & Co., and the Buda Co., in the Detroit territory in the immediate past.

Leavitt Uses Zone System—The J. W. Leavitt organization, Pacific Coast distributers of the Overland and Willys-Knight, has adopted the zone system, following the lead of the factory. A. D. Plughoff is retained as general manager, but instead of covering the entire territory, it is now necessary for him only to keep in touch with the three zone managers located in San Francisco, Seattle and Los Angeles.

Van Sicklen Plans Bigger Production—The Van Sicklen Speedmeter Co., Elgin, Ill., announced this week that the production of the company had been sold out and that no more big contracts can be taken for some time. Besides securing renewals of last year's contracts, the company, since removing to Elgin, has added to the list of manufacturers who furnish speedmeters as standard equipment. In preparation for further demands, increases in the plant are under contemplation and an expansion will be made during the present year.

Flint Companies' Big Payroll—The Buick Motor Co., the Chevrolet Motor Co., the Weston-Mott Co., and the Mason Motor Co., Flint, Mich., paid to their employees for the second half of January a total of $524,076.83, which is an increase of at least $25,000 over the previous high record. It required extra help and special arrangements at the banks to be able to take care of the great throngs which came to make deposits.

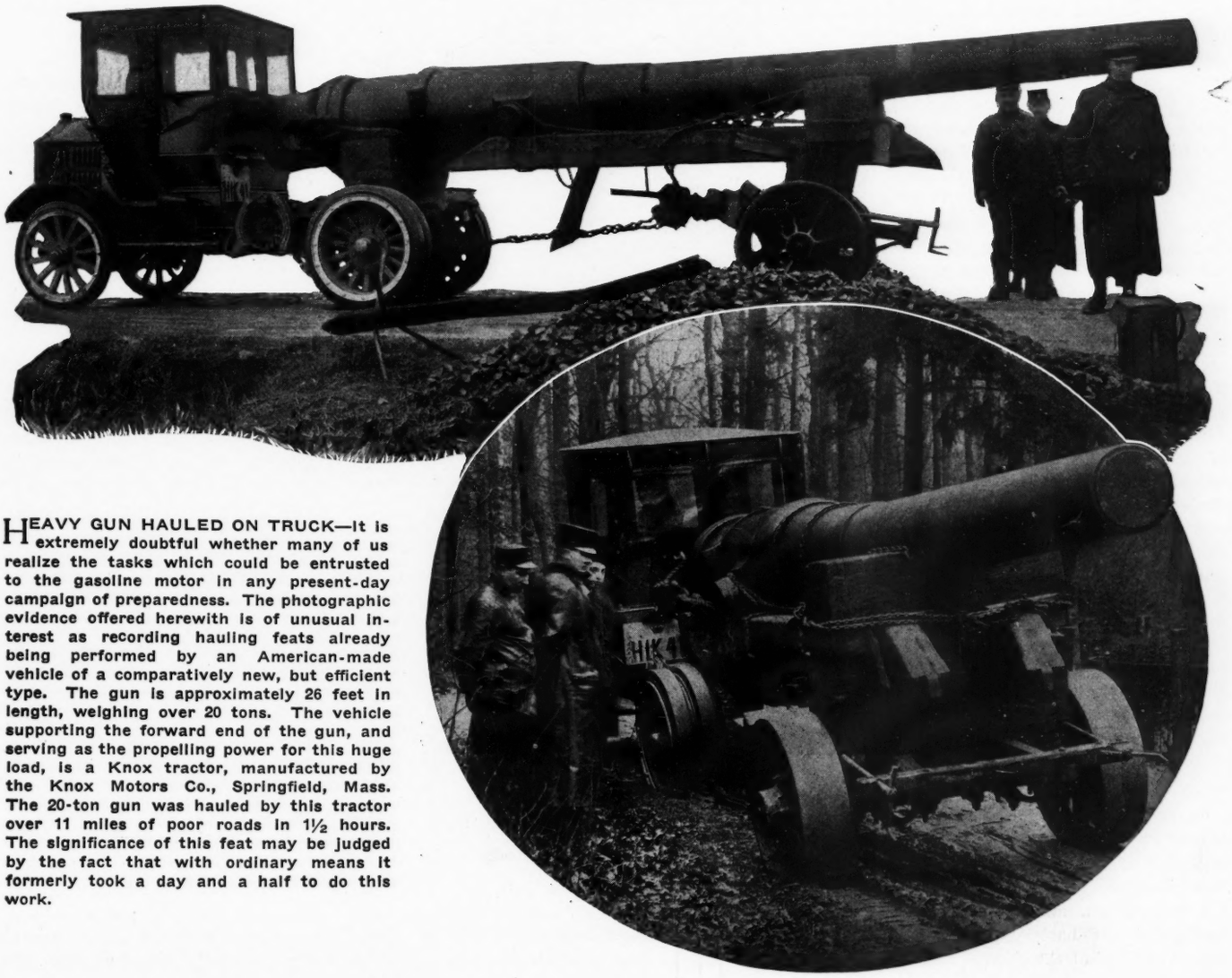
To Make Front Wheel Drive—A front wheel drive truck is to be brought out by the Page Buggy Co., Marshall, Mich., it is rumored. This company some time ago started to make trailers. The truck business is to be taken care of by a company now in form of organization, with a capital stock of $100,000, but its officers and stockholders will be mostly those interested in the Page company, it is said.

M. A. D. Elects Reeke President—Alfred Reeke, president of the Reeke-Osmond Motor Car Co., Milwaukee, Wis., representing the Jeffery, was elected president of the Milwaukee Automobile Dealers, Inc., at the annual meeting. Mr. Reeke succeeds Frank J. Edwards, Kissel and Dodge agent, who served three terms. Other officers elected are: Vice-president, Allton J. March, Curtis Automobile Co., Hudson; treasurer, Herbert W. Bonnell, manager, Mitchell Automobile Co., Milwaukee. The directors are: Messrs. Reeke, Smith, March, Bonnel, Edwards and John G. Wolleager, Studebaker agent, and Ray C. Chidester, manager of the Milwaukee branch of the Packard Motor Car Co. of Chicago.

Fisher Body in Krit Plant—The Fisher Body Co., Detroit, Mich., recently has leased the plant formerly occupied by the Krit Motor Car Co. It is now one of the many manufacturing branches of the Fisher company here. There are about 150 men employed now.

Olds Four is Continued—There is no truth in the report that the Olds Motor Works, Lansing, Mich., intends to curtail the production of its four-cylinder car because of the great demand for its new eight, says the general sales manager, J. V. Hall. As long as there will be a public demand for the four the concern will make one.

Graphite Company Changes Name—The International Acheson Graphite Co., Niagara Falls, N. Y., has changed its name and hereafter will be known as Acheson Graphite Company. It will be noted that the word "International" has been dropped and that the company name now begins with the name of the noted inventor of the process for making graphite artificially in the electric furnace. The change was brought about through the conception that the word "International" had no significance in the company's business and only served to conceal the identity of the company when indexes and other references were examined for the name and address.



HEAVY GUN HAULED ON TRUCK—It is extremely doubtful whether many of us realize the tasks which could be entrusted to the gasoline motor in any present-day campaign of preparedness. The photographic evidence offered herewith is of unusual interest as recording hauling feats already being performed by an American-made vehicle of a comparatively new, but efficient type. The gun is approximately 26 feet in length, weighing over 20 tons. The vehicle supporting the forward end of the gun, and serving as the propelling power for this huge load, is a Knox tractor, manufactured by the Knox Motors Co., Springfield, Mass. The 20-ton gun was hauled by this tractor over 11 miles of poor roads in 1½ hours. The significance of this feat may be judged by the fact that with ordinary means it formerly took a day and a half to do this work.

The Accessory Corner

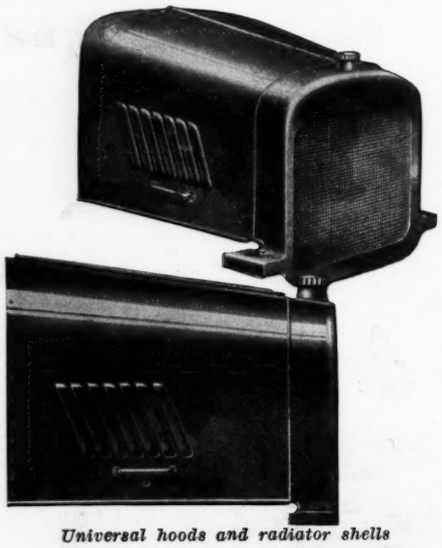
Mecco Portable Garages

THE Moeschel-Edwards Corrugating Co., Covington, Ky., makes portable garages, the material entering into their construction being all metal. These garages are designed to be fireproof and therefore comply with the building codes of various cities. Prices range from $50 up.

Mecco metal portable garage

Universal Hoods and Radiators

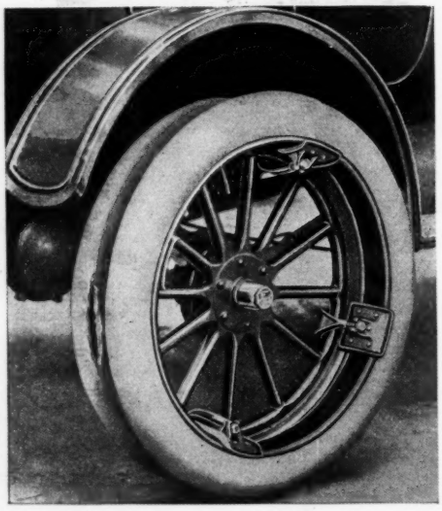
The Universal Specialty Co., Cleveland, O., makes a line of hoods and radiator shells for fitting to Ford cars. These hoods conform to the conventional streamline design and are die stamped and heavy enameled. The radiator shell also is enameled. Both the hoods and radiators are strongly constructed and are guaranteed not to loosen or rattle. The removal of the old hood and the attachment of the Universal is said to be a matter of only 20 minutes. While usually sold in all-black finish, the Universal also is made with nickeled radiator shell. Its weight is about 25 pounds. Price, complete, ready to install, $17.50. Two views of the hood and radiator shell are shown at the right.



Universal hoods and radiator shells

Twin Rim

The Twin-Rim, made by the Twin-Rim Co., Inc., Boston, Mass., is a device made for the motorist who uses clincher rims. A spare tire is mounted on the Twin-Rim and inflated and carried the same as a demountable rim, but in case of a puncture, or blowout, the Twin-Rim with its inflated tire is clamped against the wheel with the damaged tire, with four clamps, which are furnished as part of the outfit. The method of attachment is shown in the illustration on this page. It is so constructed that it fits both the front and rear wheels and is easily attached in less than 5 minutes, according to the manufacturer, leaving the punctured tire on the wheel. This device is designed to give a clean and dependable method of getting out of tire trouble on the road and the Ford owner can use his car as it was designed to run, with the 30 by 3½ tires in the rear and the 30 by 3 in front, and still have all the advantages of demountable rims. This device sells for $5.



The twin rim for those using clincher tires

Lincoln Battery Charger

In the January 27 issue of Motor Age, through a typographical error, the charging rate of the Lincoln Battery Charger was given erroneously. It was said that the charger automatically tapers off the current as the battery becomes charged, and at the end of the charge "the input is only 37 amperes, depending upon the size of the batteries." This should have read: "***the input is only 3 to 7 amperes.***" It is evident that a finishing rate of 37 amperes would be ruinous to practically any lead battery made.

Simplex Jacks

Simplex jacks are made in two new styles by Templeton, Kenly & Co., Ltd., Chicago, these being shown in this department. The No. 38 is a medium-priced jack with variable lifting heights. It is made of malleable iron, every part being carefully machined. The adjustable shoe locks firmly into any position on the I-beam shaped rack bar and may be instantly adjusted by hand to any car height. The capacity of this jack is 1,500 pounds. When closed it is 10½ inches high. It has a 6-inch shaft and weighs, boxed, 9 pounds. The geared jack, known as No. 45, is made of alloy steel. The operating pawls engage a large gear upon the shaft of which is the rack pinion that meshes into the rack. There are no small parts to become lost or broken. The shoe shown in the illustration gives the No. 45 four lifting points. It is quickly adjusted to any height of car and gives the jack a wide field of usefulness. The capacity of the jack is 4,000 pounds. The heights of the lifting positions are 9, 10½, 11¾ and 13 inches. Weight, boxed, 13 pounds.

Hughes Electric Heater

A device known as the Hughes electric heater, made by the Hughes Electric Heating Co., 209 West Schiller street, Chicago, is made to keep the engine and radiator warm in winter weather, when the car is in the garage. This is made for attachment to the electric lighting circuit, then the device placed under the hood of the car and the current turned on. The manufacturer claims that this heater will deliver a powerful and uniform heat at less than 1 cent an hour cost, thus assuring a warm engine and radiator, even in freezing weather. Ten feet of cord is provided with the outfit and the device may be used either with direct or alternating current. Price, $3.50. It is said that this heater eliminates danger from fire.

Junkunc Locks

Junkunc Bros., 79th and Wallace streets, Chicago, are making combination locks for cars that afford 51,000 combinations, although there are but five pieces to the lock. These pieces are solid brass, two of which are permanently rolled together to

form the casing, making a finished lock comprising only four parts, so put together that there are no seams. There are no tumblers, no rivets, springs, pins, or bolts. These locks are made in several sizes and range in price from 75 cents to $1.50.

Royal Spark Plug Tester

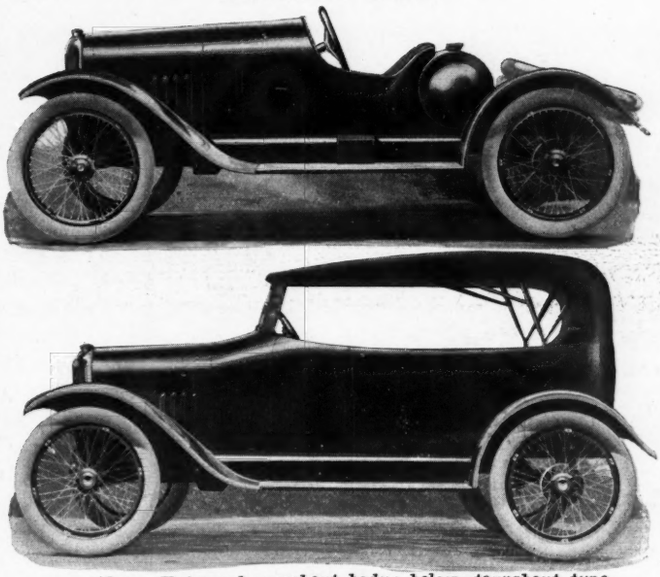
A simple and convenient tester for spark plugs is being marketed by the Pittsburgh Electric Specialties Co., Pittsburgh, Pa., under the name, Royal Tester. It consists of a crotch containing the spark gap and two legs containing the terminals. One leg is 3 inches shorter than the other, so as to permit of convenient contact. When the plug is in good condition the tester shows a regular spark. If it is short-circuited it will show non-spark. If the porcelain is defective, the tester will show irregular spark. If the motor has no power, tester will show clear spark, indicating that the trouble is in the mixture. When there is a knock in the motor, the tester will magnify the knocking noise and thus locate the cylinder in which the knock occurs. It is made of hard rubber with rounded corners. It measures 5 inches in length and is convenient to carry in the pocket. It is illustrated on the last page of this department.

Alben Jack and Crane

The Alben Co., Milwaukee, Wis., is marketing the Alben giant portable jack and crane, shown in this department. This device has no chains or ratchet, but is so constructed that it locks automatically at any point, and the load may be raised or lowered to the fraction of an inch. It has two speeds, one for heavy lifting and a very speedy arrangement for lowering the load, or for light work. One man can operate it. Fully extended, the crane measures 9 feet, 3 inches, and the crane at its lowest point is 6 feet, 4 inches. It sells for $85.

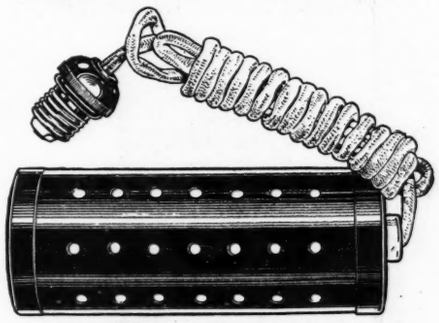
Magnalite Pistons for Fords

The Walker M. Leavitt Co., New York, now is making Magnalite pistons for Ford cars, an illustration in this department showing the piston and connecting rod assembly. Complete, the rod and piston weigh only 26 ounces, whereas the stock cast-iron and steel assembly weighs 74 ounces. Thus, the difference in weight, multiplied by four, the total number of cylinders, equals 192 ounces, or 12 pounds. By the substitution of Magnalite for cast-iron and steel in these parts, it is calculated that an increase of from 25 to 30 per cent efficiency may be realized in any Ford motor. The output of horsepower will be increased on a lower ratio of fuel consumption and vibration minimized. No babbitt is used for the bearing on the crankshaft end of the connecting rod, Magnalite being the bearing material used instead of babbitt.



Above, Universal raceabout body; below, tourabout type

Simplex jacks, the model 45 and the 38



Hughes electric heater

Boyer anti-skid chain device

Universal Bodies for Fords

The Universal Car Equipment Co., Detroit, Mich., is making tourabout and raceabout bodies for Ford cars, such as are shown in the illustration at the top of the second page of this department. The tourabout body is built of heavy-gauge steel, reinforced, and has comfortable, deep upholstery, spring cushions, ample leg room and wide seats. It is fitted with robe rail, foot rail, scuff plates, floor carpet, lock plates and knobs. Fifteen painting operations make for a quality finish. The standard color is black with gold stripe. Special color schemes may be had for $10 extra. The top and windshield shown are made specially for this body and will not fit the regular Ford. The price is $150. Mohair, or khaki, one man top and rain-vision, ventilating windshield, $38.

For the raceabout body the same may be said of its construction. In color the raceabout comes in red with black trim. The hood and fenders are black, radiator black and nickel. Body with 15-gallon tank, and tire supports, sells at $100. Crown fenders for bodies list at $14 and the one man top, such as shown on the tourabout, is $30. Spranger wire wheels shown in both illustrations may be had in red, green, black or yellow—special colors extra—at $35 a set of four wheels and five rims. These wheels are made to fit on the same as the wood wheels taken off and installation is a matter of only a few minutes.

Victor Tires

A recent production in the tire field is the new Victor Springfield line of casings and tubes, made by the Victor Rubber Co., Springfield, O. Distribution of this new tire has already been arranged for in a number of localities, and the company is making deliveries now on all the popular sizes, non-skid and plain treads. The non-skid tire is made up of a series of the letters "V" so arranged as to present the most angles to the road surface and at the same time brace the center of the tread and reinforce the side walls. An unusual amount of rubber is concentrated in the center of the tread where it gives added mileage. The design is an attractive one, the tread is made from a dark-colored rubber, of such material that it is possible to guarantee 5,000 miles under severe service.

Boyer Skid Chains

Immediately at the left is shown the Boyer skid chain and the application. It will be noted that there are four points where the chain goes over the tire and that the chain is kept tight by the springs extending from one point of chain contact with the tire to the next. The chain is

the product of W. J. Boyer, 6033 Dorchester avenue, Chicago.

Windshield Cloth

Windshield cloth, marketed by the Central Agency Co., Kansas City, Mo., is a saturated cloth, put up in airtight containers, and when rubbed over the windshield is said to prevent rain, sleet, snow or moisture of any nature from adhering to the glass and obstructing the driver's vision. It is manufactured by secret process, and is fat free. Its tendency is to keep the glass cleaner than an ordinary washing would. One application will suffice for a period of at least 24 hours in the most violent storms, it is said.

Windshield cloth was invented by A. R. Gibson in collaboration with Dr. J. A. Greaves, a Chicago chemist. It is sold to the consumer at 50 cents per container, and each container holds 4 months' supply.

Apco Fan Belt Adjuster

To eliminate fan belt troubles and to improve the efficiency of the belt, the Auto Parts Co., Providence, R. I., has brought out two new Apco devices. The automatic fan belt adjuster automatically maintains the proper tension, and one of its advantages is that it requires no attention after installation. The maker claims it will considerably increase the life and efficiency of the belt and that it can be installed in a few minutes by the novice. Rattling of the fan belt assembly is prevented by the spring which provides the correct belt tension. The device retails at 40 cents.

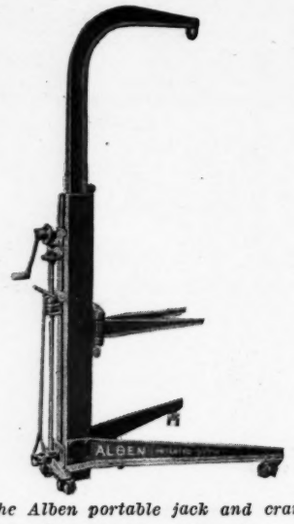
The Apco fan belt retainer will appeal to those owners who experience trouble with the belt leaving the pulleys. The retainer is attached to a crankcase bolt and being adjustable can be set to the best advantage. The retainer sells for 20 cents.

The spark and throttle lock is a simple and easily attached device that will prevent starting and operation of the motor as the levers are locked in a fully advanced position. This prevents use of the car and enables the garage attendant to move the machine to the washstand, etc. The device includes a high grade lock and retails at 60 cents.

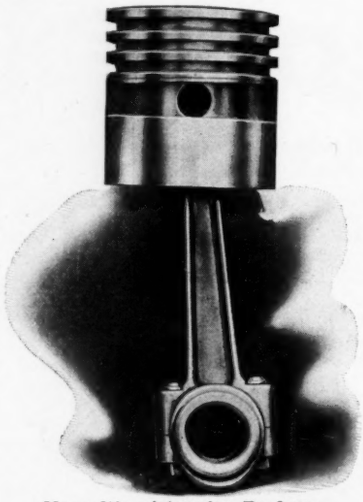
Ironclad Tires

The Ironclad Tire Co., 840 Jackson boulevard, Chicago, is marketing a double tread tire that is said to be practically puncture proof and carrying the name, Ironclad. The thickness of the tread is nearly double that found in ordinary construction. The tire is guaranteed for 4,000 miles of actual road wear and a written guarantee is given with each tire purchased. These tires are made in two sizes, only: 30 by 3 and 30 by 3½, although they may be had either in plain or nonskid. For the smaller size the price is $5.50 plain, and $6.50 non-skid; for the larger, $6.50 plain, and $7.50 non-skid. This concern is marketing direct to the consumer and takes old tires in exchange for the Ironclads. It allows 50 cents for 30 by 3 and 75 cents for 30 by 3½ casings, but not more than two old tires are accepted in exchange for one Ironclad.

Left, the Royal spark plug tester, and right, the Junkunc lock



The Alben portable jack and crane



Magnalite piston for Ford cars

Fowler Lamp

The Pioneer Lamp Co., 57 East Twenty-fourth street, Chicago, has brought out a searchlight, a feature of which is the universal swivel bracket, this, it is said, being the only hollow swivel bracket of any kind used for any purpose today. A coiled spring is also used, which permits the free use of all the swivels and instantly locks the lamp in any position the moment the user's hand is removed. There also is a rear view mirror in some styles of the Fowler lamp. The lamps are made of brass and the reflectors are nickel plated, while the exterior of the lamp and all fittings is enameled. By using the hollow swivel the feed wire can be run through it, which lessened the chances of the wire becoming broken. These lamps are made in several sizes and the prices range from $4 to $12.

Asco Tire Carriers for Fords

The American Auto Specialty Co., Peru, Ind., has brought out a rear-end tire carrier for Ford cars, under the name of Asco, which is easy to attach and is guaranteed not to loosen under vibration. It is light, durable, lasting, and by drilling a hole for the valve stem, it will accommodate demountable rims. The rim is made of sheet steel and the adjustments are of malleable castings. It is made in three sizes, single touring, roadster type, and demountable touring type. To operate the wheel is turned in one direction, this expanding the rim and securely fastening the tire. The reverse operation contracts the rim and the tire comes off.

Perkins Safety Stove

Perkins & Co., 700 Front street, N. W., Grand Rapids, Mich., is marketing a safety stove for heating garages, that is designed to make its use perfectly safe and eliminate the fire hazard. With this stove everything is air-tight and the oxygen used to support the flame is brought into the garage through a pipe extending to the outside of the building, so that the fumes from gasoline inside the garage do not reach the flame in the stove. The flow of oil to the burner, which is wickless, is regulated by a thermostat, cutting off when the temperature of the room reaches a predetermined limit. Further, if the flame goes out the construction of the stove is such that the oil will not flow out of the stove.

Carter Mechanical Starter

A simple mechanical starter has been invented by J. Frank Carter, Grand Rapids, Mich., which will be so reasonable in price when placed on the market as to be within the reach of any motorist. It operates through a lever and contorter and is attachable to any car. Foot pressure on the contorter, an iron rod reaching to a compound lever which governs the clutch, throws the clutch into position on the crankshaft. The main lever attaches to a quadrant controlling a cable and a second quadrant, which is imposed on the clutch. A sharp ull on the lever swings the clutch and spins the engine. The quadrants are then returned to their original positions by a heavy spring. Carter believes his starter, by reason of its simplicity, will become very popular. Its efficiency is high and in the coldest weather not more than five pulls of the lever are required to start the motor. He shortly will organize a company for the exploitation of the invention.